RETAIL INVESTOR'S PARTICIPATION IN INDIA'S STOCK BASED INDEX FUTURES MARKET: OPPORTUNITIES AND CHALLENGES

ABSTRACT

THESIS

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ABSTRACT

Introduction

A futures contract is an agreement between two parties to buy or sell an asset at a certain time in future for a certain price. It is a part of derivatives. The term 'derivative' refers to a broad class of financial instruments, mainly including options and futures. These instruments derive their value from the price and other related variables of the underlying asset. They do not have worth of their own and derive their value from the claim they give to their owners to own some other financial assets or security. The asset underlying a futures may be a commodity or a financial asset.

Futures contracts were introduced just as a risk management tool in the financial market. However, they can be used for price risk as well as to speculate thereby attracting hedgers and speculators towards the market.

Indian futures market is mainly driven by Institutional investor, Retail investor and Proprietary. In 2009-10 their participation was 13.61%, 54.86% and 31.635 respectively in terms of traded volume. It was shown that retail investors play a remarkable role in Indian derivative market. As their numbers have exploded, it has become increasingly more important to understand the minds, motivations, and decision-making styles of retail investors.

A retail investor's behavior comprehension happens to be a complex thing. Economists, sociologists and psychologists have all attempted to explain investor behavior in various ways. Economists' enquiry into investor behavior have focused largely on the 'rationality' or 'irrationality' of investor decision making process. Sociologists explain investor behavior by focusing on investors' social environments. They suggest that investors may be trying to enhance their stature within a group or society in general. Psychologists have largely focused on the investor's behavior on the basis of their attitudes, perceptions, and personality. But of course, there is a lot of overlap between the disciplines.

The futures and options segment of NSE witnessed huge increase in volumes during 2009-10 and continued to achieve a commendable place on the international front. Globally NSE (National Stock Exchange of India) ranked in the fifth position in terms of futures and options traded in 2010. Among the top ten equity index futures and options, the Indian S&P CNX Nifty Index Options comes in fourth position whereas S&P CNX Nifty Index Futures in ninth rank.

Review of Literature

As it is already said that retail investor's behavior comprehension happens to be a complex thing and experts from different fields have all attempted to explain investor behavior in various ways. The demographic factors of the investors influence a lot on their financial decision making. Studies like Dwyer *et al.*, (2002), Hanna & Lindamood (2005), Jaffar & Namasivayan (2006) found that males have more risk taking attitude than females in financial decisions. Bajtelsmit & Bernasek (1996), Palsson (1996), Jianakoplos & Bernasek (1998), Powell & Ansic (1997) and Bajtelsmit, *et. al.*, (1999) also find support for the notion that females have a lower preference for risk than males. Grable & Joo (1999) and Hanna *et al.* (1998), however, find that gender is not significant in predicting financial risk tolerance.

Churaman, (1988); Lytton & Grable, (1997); Prince, (1993) when investigating differences in the level of confidence among males and females report that males tend to be more confident than females in investment decision making.

Cohn *et al.* (1975), Schooley and Worden (1996), Shaw (1996), Grable (2000), and Veld & Veld-Merkoulova (2008) found that higher educational level attainment is associated with increased level of risk tolerance. They found that individual investors with university or college education are more likely to invest in risky assets. Also Baker & Haslem (1974), Haliassos & Bertaut (1995) and Sung & Hanna (1996) showed that the level of education has a considerable impact on a person's ability to accept risk. Specifically, higher attained levels of education are felt to increase a person's ability to evaluate risk and are therefore considered to be positively related to higher financial risk tolerance.

Shefrin & Statman (1995) found that education influences investors' aversion to realized losses, as the education of the investor increases, their regret in loss making situation decrease.

Wallach & Kogan (1961), McInish (1982) and Morin & Suarez (1983) found that younger investors have different attitudes toward financial decisions than elder ones. Although Bajtelsmit & Van Derhei (1997), Palsson (1996) and Sung & Hanna (1996a) found that risk tolerance decreases with age, as older individuals tend to be less risk tolerant than younger persons. While Grable & Joo (1999), Grable & Lytton, (1998) and Wang & Hanna (1997) argued that a negative relationship exists when testing the association between age and risk tolerance. The older investor is more likely to have low level of risk tolerance; it implies that with age increasing investors have a decreasing preference for investment on risky assets. In addition Bakshi & Chen (1994) and Frijns *et al.* (2008) showed that younger investors are likely to have high level of risk tolerance; it means that a younger investor has less preference for investment on riskless asset than the older ones.

The findings of the study also agree with Rajarajan (2003), Hallahan *et al.* (2003) and Hallahan *et al.* (2004) that occupation influences an individual's level of risk taking and risk-tolerance in portfolio choice.

The present study agrees with Barnwell (1987) that investors who are more experienced, are more likely to take risks in investing because they already have the experience of taking risks in their past wealth creation process. While Abraham (2007) argued that emotion in economic and financial decision-making is not to be suppressed or eschewed. It is to be viewed as a valuable tool that guide and influence even the most mature and experienced of traders.

Tourani-Rad & Krikby (2005) find that investors will be overconfident if they have succeeded in the past as it led to optimism and a better confidence in one's ability with an investment experience. This also enriches his/her investment related knowledge with firsthand experience.

It is a common tendency among investors to attribute success or good outcome to their personal abilities, while putting the blame for failures or unfavorable outcomes on circumstances beyond their control or plain bad luck (Miller & Ross, 1975). Lander & Roth (1975), Taylor & Brown (1988) found that individuals tend to recall and relish their successes, while forgetting their defeats make them overconfident.

While Bhandari & Deaves (2006) also found that if the stock price picked up do well, the investors take it as confirmation of their investing ability, but if the stock price falls, they cite the general condition of the economy or market as the reason for decline.

The common tendency of investors' overreaction may be due to the reason that they tend to put more weight on the recent news, as compared to past data. People tend to be optimistic when the market goes up and pessimistic, if the market comes down. Investors may overreact because complete and accurate information is never available (Mittal & Vyas, 2009).

Shiller (1997) and Deanlebaron (1999) results indicated that investors avoid selling shares that have decreased in value. They keep hanging on to shares whose prices are falling, seeing the price falling further.

Research Gap

Majority of the studies related to futures reported in the literature are carried out in context of the developed countries like US, Britain, Australia etc. However, the researcher has not located any empirical study in the Indian context. In most of the studies, only institutional and big investors are focused upon and there is general lack of studies on the small and retail investors.

Though previous researches have depicted the influence of investors' demographic profile on different investment avenues but there is still much scope. They mainly dealt with fixed deposits, mutual funds, equities, real-state and commodities etc. However, none of these studies have dealt with futures trading, which indicate a research gap and points towards a need for conducting research in the area of investor demographics with reference to futures trading.

Most of the previous studies related to futures trading have dealt with different dimension of the markets like volatility, price discovery, information flow, impact on stock market, etc. Since, none of these specifically address the effect of investors' demographics on different dimensions of futures trade; the present study tries to address the same in order to bridge the research gap.

Very few studies have been conducted in regard to investor's perception and investment behavior in equity market but rarely any study has been found related to stock index futures. There is not much emphasis on studies related to retail investors' opportunity and challenges in futures trading in India. There are various issues in need of attention related to futures trading. Specially, the Indian retail investors face issues like new product design, margin requirement and trade timing.

Based on the literature review, it is clear that most of the studies have been conducted in regard to investors' perception and behavior in stock trading. Very few studies have been conducted in regard to stock based index futures market. A research gap exists with respect to retail investors' participation, perception, risk return expectation and their confidence level in Indian stock futures markets. To fill in this void, the present study has been undertaken.

Scope of the Study

The present study has been conducted keeping in view the retail and small trader in Indian equity futures (single stock futures/ stock index futures) market to look into the following aspects.

- Different aspects of stock/index futures.
- Retail investors' awareness in stock/index futures.
- Problems faced by retail investors in stock/index futures.
- Opportunities in stock/index futures trading.
- Suitable futures product development for the investors.
- Measures to be implemented by SEBI to build the retail investors' confidence in stock/index futures trading.

Research Objectives

Keeping in view the research gap on different parameters of retail investors' and stock and index futures (SIF) trading following objectives have been framed:

- To study the frame work of SIF market in India.
- To study the awareness of retail investors in SIF trading.

- To study the influence of demographic variables on investor's SIF trading behavior.
- To study the trading attitude of retail investors in SIF trading.
- To explore the retail investors' behavior in SIF trading.
- To study the opportunities and challenges of SIF market in India.
- To come up with suggestions on the basis of findings of the study.

Formulation of Research Hypotheses

Research hypothesis is a predictive statement, capable of being tested by scientific methods, that relates an independent variable to some dependent variable (Kothari, 2004). The formulation of hypotheses in this study has been divided into two sections:

Section A: In this section following six sets of hypotheses have been formulated. In each set there are five hypotheses and altogether, there are thirty hypotheses. Theses hypotheses deal with investors' behavior in futures trading and their demographic influences on it.

Hypotheses based on dimensions of retail investors' futures trading behavior with respect to gender

H_{01} There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to gender.

H_{02} There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to gender.

H_{03} There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to gender.

H_{04} There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to gender.

H_{05} There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to gender.

Hypotheses based on dimensions of retail investors' futures trading behavior with respect to educational qualification

H_{06} There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to educational qualification.

H_{07} There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to educational qualification.

H_{08} There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to educational qualification.

H_{09} There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to educational qualification.

H_{010} There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to educational qualification.

Hypotheses based on dimensions of retail investors' futures trading behavior with respect to income

H_{011} There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to income.

H_{012} There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to income.

H_{013} There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to income.

H_{014} There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to income.

H_{015} There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to income.

Hypotheses based on dimensions of retail investors' futures trading behavior with respect to age

H_{016} There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to age.

H_{017} There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to age.

H_{018} There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to age.

H_{019} There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to age.

H_{020} There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to age.

Hypotheses based on dimensions of retail investors' futures trading behavior with respect to occupation

H_{021} There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to occupation.

H_{022} There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to occupation.

H_{023} There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to occupation.

H_{024} There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to occupation.

H_{025} There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to occupation.

Hypotheses based on dimensions of retail investors' futures trading behavior with respect to experience

H_{026} There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to experience.

H_{027} There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to experience.

H_{028} There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to experience.

H_{029} There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to experience.

H_{030} There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to experience.

Section B: In this section, there are ten hypotheses. Theses hypotheses deal with investors' attitude in futures trading and their demographic influences on it.

Hypotheses based on attitude of retail investors' in futures trading

H_{031} There is no significant variation in *self attribution bias* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{032} There is no significant variation in *over-reaction* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{033} There is no significant variation in *purchase price perception* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{034} There is no significant variation in *regret/loss avoidance* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{035} There is no significant variation in *futures trading motives* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{036} There is no significant variation in *margin requirement perception* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{037} There is no significant variation *in the* investors' desire for mini futures based on their demographic variables (gender, education, income, age, occupation and experience).

H_{038} There is no significant variation in *trading hour requirement* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{039} There is no significant variation in the investors' tendency of trading in futures with options based on their demographic variables (gender, education, income, age, occupation and experience).

H_{040} There is no significant variation in investors' *satisfaction with SEBI* based on their demographic variables (gender, education, income, age, occupation and experience).

Research Methodology

Sampling Procedure

Population: The entire retail investors' population who trade in equity and index futures in the Indian futures Market.

Sampling unit: Retail investors having traded at least once in stock/index futures were chosen as the sampling unit. The respondents were contacted from New Delhi, Gurgaon, NOIDA, Agra and Aligarh.

Sampling Frame: Due to privacy and security concerns, it is practically not possible to obtain a list of investors who have traded in stock/ index futures in the sampling region. Thus, the sample frame comprised retail investors who were present at the broking house during the trading hours.

Sampling method: As far as this research is concerned, convenience sampling method appeared to be the most practical.

Sample size: As a general rule of thumb, data from at least 300 cases is deemed comfortable, 500 considered as very good and 1000 as excellent (Comrey & Lee, 1992; Tabachnick *et al.*, 2001; Garson 2007). Thus it was decided to target a total of around 750 respondents. All the participants belonged to New Delhi, NOIDA, Gurgaon, Agra and Aligarh.

Final Sample and method of data collection: Over all around, 750 investors were approached out of which only 454 agreed to participate in the study. The survey was conducted during January, 2010- February, 2011. Proper care was taken to ensure that

respondents understood all the questions asked during the survey and responded to the best of their ability. Out of the 454 questionnaires, 43 were found incomplete and so were discarded. Thus, a total 411 questionnaires were analyzed. This gives an overall response rate of 54.80%., a response rate of above 20% is considered satisfactory for survey findings (Yu and Cooper, 1983).

Statistical techniques

The statistical techniques used in this study can be categorized into two groups. The first set of techniques was used to refine and test the reliability and validity of the research instrument by using Cronbach, exploratory factor analysis, inter-item correlation Alpha, inter-item correlation, VARIMAX (Hair *et al.*, 2006; Sekaran, 2003). The second set of techniques was used to explore differences between groups by using T-tests and ANOVA and Chi-square test (Malhotra, 2005; Pallant, 2005; Sekaran).

Results of Hypotheses

Table-2: Summary of Hypotheses results based on Dimensions of Investment versus Gender

No.	Hypotheses	T-value	Sig.	Remark
H_{01}	There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to gender.	6.200	.000*	Not Supported
H_{02}	There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to gender.	8.090	.000*	Not Supported
H_{03}	There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to gender.	-.385	.701*	Supported
H_{04}	There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to gender.	14.452	.000*	Not Supported
H_{05}	There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to gender.	9.098	.000*	Not Supported

Table 3: Summary of Hypotheses results based on Dimensions of Investment versus Education

No.	Hypotheses	F	Sig.	Remark
H_{06}	There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to educational qualification.	38.169	.000*	Not Supported
H_{07}	There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to educational qualification.	28.233	.000*	Not Supported
H_{08}	There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to educational qualification.	22.377	.000*	Not Supported
H_{09}	There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to educational qualification.	16.942	.000*	Not Supported
H_{010}	There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to educational qualification.	28.983	.000*	Not Supported

Table 4: Summary of Hypotheses results based on Dimensions of Investment versus Income

H_{011}	There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to income.	151.364	.000*	Not Supported
H_{012}	There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to income.	90.653	.000*	Not Supported
H_{013}	There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to income.	49.000	.000*	Not Supported
H_{014}	There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to income.	147.597	.000*	Not Supported
H_{015}	There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to income.	90.148	.000*	Not Supported

Table 5: Summary of Hypotheses results based on Dimensions of Investment versus Age

H_{016}	There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to age.	36.351	.000*	Not Supported
H_{017}	There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to age.	24.142	.000*	Not Supported
H_{018}	There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to age.	13.370	.000*	Not Supported
H_{019}	There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to age.	47.456	.000*	Not Supported
H_{020}	There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to age.	29.307	.000*	Not Supported

Table 6: Summary of Hypotheses results based on Dimensions of Investment versus Occupation

H_{021}	There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to occupation.	59.852	.000*	Not Supported
H_{022}	There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to occupation.	61.479	.000*	Not Supported
H_{023}	There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to occupation.	13.294	.000*	Not Supported
H_{024}	There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to occupation.	41.099	.000*	Not Supported
H_{025}	There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to occupation.	38.616	.000*	Not Supported

Table 7: Summary of Hypotheses based on Dimensions of Investment versus Experience

H_{026}	There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to experience.	36.834	.000*	Not Supported
H_{027}	There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to experience.	20.164	.000*	Not Supported
H_{028}	There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to experience.	23.933	.000*	Not Supported
H_{029}	There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to experience.	38.377	.000*	Not Supported
H_{030}	There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to experience.	68.705	.000*	Not Supported

Table 7: Summary of Hypotheses based on Investor's Attitude with respect to their demographic variables

Hypothesis	**Demographic Variables**	χ^2	**Sig.**	**Remarks**
H_{031}: There is no significant variation in *self attribution bias* of the investors based on their demographic variables-	Gender	7.943	.005*	Not Supported
	Education	19.609	.001*	Not Supported
	Income	30.041	.000*	Not Supported
	Age	20.759	.000*	Not Supported
	Occupation	40.840	.000*	Not Supported
	Experience	79.936	.000*	Not Supported
H_{032}: There is no significant variation in *over-reaction* of the investors based on their demographic variables-	Gender	.542	.462	Supported
	Education	79.511	.000*	Not Supported
	Income	86.154	.000*	Not Supported
	Age	49.864	.000*	Not Supported
	Occupation	37.165	.000*	Not Supported
	Experience	72.172	.000*	Not Supported

H_{033}: There is no significant variation in *purchase price perception* of the investors based on their demographic variables-	Gender	2.921	.087	Supported
	Education	57.243	.000*	Not Supported
	Income	43.204	.000*	Not Supported
	Age	45.096	.000*	Not Supported
	Occupation	21.622	.000*	Not Supported
	Experience	45.369	.000*	Not Supported
H_{034}: There is no significant variation in *regret/loss avoidance* of the investors based on their demographic variables-	Gender	1.425	.233	Supported
	Education	43.470	.000*	Not Supported
	Income	88.856	.000*	Not Supported
	Age	95.312	.000*	Not Supported
	Occupation	41.970	.000*	Not Supported
	Experience	57.127	.000*	Not Supported
H_{035}: There is no significant variation in *futures trading motives* of the investors based on their demographic variables-	Gender	1.662	.436	Supported
	Education	50.161	.000*	Not Supported
	Income	128.90	.000*	Not Supported
	Age	93.760	.000*	Not Supported
	Occupation	55.601	.000*	Not Supported
	Experience	83.121	.000*	Not Supported
H_{036}: There is no significant variation in *margin requirement perception* of the investors based on their demographic variables-	Gender	5.160	.023*	Not Supported
	Education	13.811	.008*	Not Supported
	Income	74.063	.000*	Not Supported
	Age	44.123	.000*	Not Supported
	Occupation	20.502	.000*	Not Supported
	Experience	72.895	.000*	Not Supported
H_{037}: There is no significant variation *in the* investors' desire for mini futures based on their demographic variables-	Gender	.331	.565	Supported
	Education	11.897	.018*	Not Supported
	Income	14.748	.002*	Not Supported
	Age	31.733	.000*	Not Supported
	Occupation	34.293	.000*	Not Supported
	Experience	18.450	.001*	Not Supported
H_{038}: There is no significant variation in *trading hour requirement* of the investors based on their demographic variables-	Gender	11.301	.004*	Not Supported
	Education	24.192	.002*	Not Supported
	Income	5.874	.437	Supported
	Age	78.397	.000*	Not Supported
	Occupation	14.779	.064	Supported
	Experience	61.636	.000*	Not Supported
H_{039}: There is no significant variation in the investors' tendency of trading in futures with options based on their demographic variables-	Gender	34.223	.000*	Not Supported
	Education	32.671	.000*	Not Supported
	Income	55.849	.000*	Not Supported
	Age	52.410	.000*	Not Supported
	Occupation	24.830	.002*	Not Supported
	Experience	99.503	.000*	Not Supported

H_{040}: There is no significant variation in investors' *satisfaction with SEBI* based on their demographic variables-	Gender	26.705	.000*	Not Supported
	Education	81.019	.000*	Not Supported
	Income	66.711	.000*	Not Supported
	Age	69.504	.000*	Not Supported
	Occupation	54.528	.000*	Not Supported
	Experience	48.018	.000*	Not Supported

Managerial Implications of the Study

The findings of the present study provide valuable insights not only to the academic researchers but also to brokers, professional advisors and investors, etc. The study gives an idea about the influence of investors' demographics on various dimensions of investment. Additionally, it also provides an insight into investors' aptitude in futures trading.

a) Implications with respect to Investors' Demographics:

- The study shows that males are more predetermined in their investment objectives, have more risk appetite, feel less regret in losses and have more confidence and control in futures trading than their female counterparts. It implies that females need to be motivated and educated in order to participate more meaningfully and actively in futures trading. The brokers or advisors can focus more on the female investors in order to educate them and advise them as per their specific needs. This may be helpful in uplifting the position of women by providing them education and economic empowerment.
- The investment decision making is influenced greatly by educational qualification of investors. It is shown through the present study that investors who are educationally more qualified are more predetermined in investment horizon, have more risk taking attitude, suffer less regret in losses and have more confidence and control in futures trading. Even though certain educational programs, leaflets, brochures, etc. are already available, there is a need to take further steps towards creating more awareness among the new investors. The brokers can educate the investors by organizing some programs like seminars, and workshops to educate the investors in futures trading. Such programs should focus more on those who do not have a formal education in finance or are less educated. All of these will certainly improve their knowledge and help them make well informed and appropriate decisions in futures trading.

- The present study shows that wealthier investors are more predetermined in investment horizon, have more risk taking ability. They regret less in losses and have more confidence and control in futures trading. The brokers/analysts can advice such investors for speculation in single stock futures and where the risk and reward is higher as compared to index futures. But the investors who are not so wealthy should trade in futures for hedging purpose only and avoid speculation. Even if they want to trade in futures should trade in index futures (medium risk) or mini index futures (low risk) with covered call/put options.
- With the growing age and experience of the investors, their risk taking attitude, confidence and control increases; but toward the age of retirement these attributes start decreasing. Brokers and advisors can advise their clients as per their specific needs. Investors who are below 55 years of age can trade in more risky futures products like single stock futures but the investors who are above 55 years of age should go for stock index futures and mini-index futures with covered options. This finding can be helpful too for new futures' products development.
- The study also found that investors belonging to different occupations show different opinions on the view of futures trading hours. Most of the investors who are working expressed their opinion in favor of increasing the trading time. This indicates that such investors want to watch the markets during trading hours but due to paucity of time, they are unable to do so. The market authorities as well as SEBI should take proper step to satisfy these groups by extending the futures trading hours like that of Currency Futures, NCDEX and MCX, etc.

b) Implications with respect to Investors' Attitude:

- The present study shows that investors have self attribution bias attitude in investment decisions. If the investors earn money in futures trading they consider themselves to be very knowledgeable and capable. However if the investors incur losses, they attribute it to bad luck. The study also shows that retail investors overreact to any information related to financial markets and often make wrong decisions. It should be the effort of investment advisors to educate their clients on these issues so that they may make more sound investment decisions. Investors should also consider factors like futures market volatility, its liquidity, economic

growth, interest rates, inflation rate, political scenario, etc. of the country when they make financial decisions.

- Investors tend to use purchase price as the reference point and make decisions based on it. They would sell only if the price of the investment is above the price at which they had made the purchase. The study also shows that investors do not want to admit that they have made a bad investment decision and feel regret. To avoid the feeling of regret, they make wrong decisions like they tend to hang on to the bad investments. If investors need funds, they prefer to sell those shares that have shown an increase in value as they want to avoid the feeling of regret. The brokers and advisors can guide the investors about the nature of the market and appropriate decisions. Investors can benefit through this study in visualizing and realizing the repercussions of their investment decisions.
- The futures products are meant for hedging purpose while most of the investors trade in futures for speculation. It may be one of the main causes of incurring losses in futures trading for the retail investors. The present study humbly suggests that such small/ retail investors should not participate in futures trading for speculative purpose.
- The present study shows that majority of the retail investors are unable to manage margins required in futures trading either because it may be initial margin or maintenance margin. It indicates that they are either ignorant of margins required or might have been trading beyond their limits. It could also be for the reason that the investors perhaps are not getting timely information. The brokers and financial advisors should educate their clients on margins related issues which arise in futures trading so that they do not indulge in trades beyond their control or monetary potential.
- A majority of the investors show their willingness for new futures products like mini-single stock futures. The mini-single stock futures' lot size (lot value) will be very small and easily managed by the retail investors. SEBI should take proper initiative to introduce such products.
- Most of the investors seem to be unaware of the real dynamics of futures and options. There is a need to educate them about options so that they could protect themselves against heavy losses.

- Due to stiff competition among brokers, the brokerage charges have been reduced tremendously in futures trading. Whereas, the government charges different types of taxes like security transaction tax, stamp duty, etc. which demotivates the retail investors. The rules and bylaws of futures market keep changing rapidly. Although SEBI is working on these issues but there is a need of making sustained effort for transparent and healthy futures market. Thus, there is need for stable bylaws to build up the investors' confidence in Indian futures market.
- A large number of investors is losing their faith toward SEBI due to day to day scandals of different companies, instability of market, operators' nexus and their monopoly in the markets. There is a need to make stricter rules and laws against such unfair practices to be implemented immediately to punish the culprits. In addition, appropriate regulations also need to be made which usually includes self regulatory organizations.
- The present study shows that India is more or less politically stable. FDIs and FIIs are thus, shown more of green flags with more warmth in India now. The exchange rates, GDP, savings per capita, education, employment, internet system and banking system are improving which help the Indian futures market. While monopoly of bureaucracy and corruption, rising inflation and interest rates, lack of proper infrastructure are the major impediments in the way of the Indian futures market's natural flourishing. The present research sheds light on the fact that brokers and investors can take proper benefits of the favourable factors, while the market authorities can take initiative to solve the problematic issues. RBI should take some specific and concrete steps to control the inflation as well as interest rate on a long run basis. SEBI should encourage brokers to expand their terminals to small towns also because a large numbers of potential investors are still unaware of this market which can boost the markets' volumes and liquidity.

Based on the above findings, it can be safely summarized that the study at hand can help brokers and advisors to understand their clients and help them advise the clients accordingly. Market authorities can also take proper initiatives to satisfy the investors and attract new ones for a continuous market growth. The present study can definitely benefit the investors to overcome their weaknesses, realize the outcome of their decisions and participate in futures trading more rationally and meaningfully.

7.2 Limitations of the Study

The present study, just like any other similar study suffers from certain limitations which are discussed below:

- The study is restricted to specific cities in India. The required data was mainly obtained from 411 futures retail investors of Delhi, NOIDA, Gurgaon, Agra and Aligarh region. Study is not exhaustive and has a scope for further research.
- It is always a problem to get an enthusiastic response. There were not many willing participants; lack of cooperation remains an aberration in most of the survey based researches. The same was observed in this study. They had excuses, showed lack of time, or expressed even an incomprehensive disinterest. Some respondents appeared reluctant to participate in the survey for reasons unrevealed.
- It was observed that the stock markets played the role of remote controlling the people. The respondents' behavior changes according to stock market fluctuations. It may reflect in the responses of some of the respondent, they may vary according to the market and thus, the findings of the survey may differ from time to time.
- There is a lack of empirical studies in this field. Specifically the Futures market effects, related human behavior and other relevant aspects in the Indian context haven't been paid much heed to. This limitation also affected the research. Such previous studies could have made the foundation of the present effort even more robust and strong.
- The study was restricted to single stock futures and stock based index futures only. Although these futures represent a significant part of Indian futures market, still it may reflect only partial reality of the entire Indian futures market.
- The questionnaire used for this study may be improved by adding more questions for a better result.
- The measurement of data is also subjected to errors.

In spite of the above mentioned limitations and constraints, the present study has gone ahead with a positive stride. The research has acquired a meaningful conclusion by striking the right points. The contribution of the progress in the various research designs supported by valid and reliable research instruments enabled to minimize the effects of the constraints faced and dealt with.

7.3 Directions for Future Research

A more detailed and grounded theoretical framework for analyzing retail investors' participation in futures market can certainly be of great help. Based on this study, the following directions for futures research may be pointed out:

- Futures research efforts need to focus on additional decision variables pertaining to prediction of investors' behavior in futures trading.
- Future researchers can explain the scope of study to include smaller cities/towns for data collection and study the difference in gap between attitude and perception with respect to futures trading of metropolitan respondents and smaller city respondents.
- Aspiring researchers may replicate this study in other countries and cultures on respondents with varied demographic backgrounds to validate the findings of the present study so as to improve its generalizability.
- Prospective researchers can do a comparative study between equity investors and futures traders, institutional investors and retail investors, and commodity futures and equity futures traders. It could help them to understand investors' behavior and attitude more clearly.
- Future researchers may compare the difference between online and offline futures investors.
- Researches may be carried out to unravel the complex mechanism of futures trading and its impact on investors.
- There is a need of proper futures product design in order to attract the investors. Even though the present thesis could not deliberate upon this issue in detail, a regular and progressive research will make it competent enough to bear the fast changing tides of the market.
- Multiple regression and model testing through confirmatory Factor Analysis (CFA) and Structural Equation Model (SEM) can be used in studying this topic.

It is suggested that future researchers should endeavor to further reduce the limitations mentioned in this study to extend and refine this research.

RETAIL INVESTOR'S PARTICIPATION IN INDIA'S STOCK BASED INDEX FUTURES MARKET: OPPORTUNITIES AND CHALLENGES

THESIS

SUBMITTED FOR THE AWARD OF THE DEGREE OF

Doctor of Philosophy

IN

Business Administration

BY

MD. AGHA NURUZZAMAN

UNDER THE SUPERVISION OF

DR. ASAD REHMAN

DEPARTMENT OF BUSINESS ADMINISTRATION
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ALIGARH - 202002 [INDIA]

2011

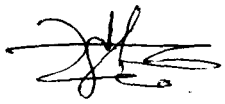
Dedicated

to

My Parents

DECLARATION

I, Md. Agha Nuruzzaman declare that the theses titled "**RETAIL INVESTOR'S PARTICIPATION IN INDIA'S STOCK BASED INDEX FUTURES MARKET: OPPORTUNITIES AND CHALLENGES**" submitted to the Department of Business Administration, Faculty of Management Studies & Research, Aligarh Muslim University, Aligarh, U.P., India, for the degree of **DOCTOR OF PHILOSOPHY** in **BUSINESS ADMINISTRATION** is a record of original work done by me and to the best of my knowledge has not previously formed the basis for the award of any degree, diploma, associate-ship, fellowship to any candidate.



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CERTIFICATE

This is to certify that the thesis titled **"Retail Investor's Participation in India's Stock based Index Futures Market: Opportunities and Challenges"** submitted to the Department of Business Administration, Faculty of Management Studies & Research, Aligarh Muslim University, Aligarh for the degree of **Doctor in Philosophy** is an original work done by **Mr. Md. Agha Nuruzzaman** during the period of his study under my supervision and guidance.

To the best of my knowledge and belief, the research work is based on the investigations made, data collected and analysed by him and it has not been submitted in any other University or Institution for the award of any degree or diploma.

Dr. Asad Rehman
Supervisor

Dated: 30.11.2011
Place: Aligarh

PREFACE

The fast growing Indian Futures Markets offer immense opportunities to investors for creating wealth and gain prosperity. Futures contracts were introduced first just as risk management tools in the financial market. However, they can now be used for price risk as well as to speculate thereby attracting hedgers and speculators towards the market. Indian futures market is mainly driven by institutional investors, retail investors and proprietary. It was shown that retail investors play a remarkable role in Indian derivative market. As their numbers have exploded, it has become increasingly more important to understand the minds, motivations, and decision-making styles of retail investors.

In spite of the increasing participation of retail investors in Indian equity futures or stock based index futures markets, there are certain doubts, mysteries and suspicions prevalent regarding the same. There has been little academic research on this field to remove these cobwebs. That's why the behavior of investors in stock/ stocks based index futures trading is not yet understood fully especially in Indian context. The present study is an effort to analyze the behavior and aptitude of the investors in context of the stock/ index futures trading. It promises to be a fruitful addition to the mentioned area.

This thesis is structured into a few chapters that provide a critical review of existing literature on futures trading, behavioral finance, research methodology, theoretical framework and research hypotheses. Data gathered has been analyzed to provide evidence in support of hypotheses considered for the study. The research findings have been relied upon to suggest implications that are important for the understanding of the behavior of Indian investors who trade in stock futures or stock based index futures.

The thesis is divided into seven chapters, and a brief overview of the same is presented below.

Chapter 1 offers an overview of the study. It includes introduction of futures market, classification of derivatives, index futures, risk in futures, futures market in India, motivation of the research and research objectives.

Chapter 2 provides a review of extant literature relevant to the research problem. The body of literature, as a whole, provides rationale for the scope. It also highlights gaps in the existing literature.

Chapter 3 outlines the research methodology adopted for the study. It consists of research design, instrument development and pre-testing, survey method, and statistical tools employed in data analysis. This also deals with the formulation of hypotheses of the study.

Chapter 4 presents the analysis of the survey findings. Hypotheses have been tested with the help of different statistical tools and the results obtained are discussed. This chapter also tries to analyse the retail investors' trading attitude.

Chapter 5 shows the Indian Futures Market opportunities and challenges with the help of PEST (Political, Economic, Social and Technological factors) analysis.

Chapter 6, the conclusions and discussions are drawn based on the findings of the present research.

In the last chapter, i.e. *chapter 7*, the managerial implications of the research have been outlined. It is also followed by limitations and directions for further research.

LIST OF PUBLICATIONS BASED ON PRESENT STUDY

SN	Title of Paper	Journal / Proceedings	Organization (s)	Issue/ Date
1	**Future of Financial Derivatives Market in India: Issues and Challenges**	Proceedings of "International Conference on Commodity & Equity Derivatives".	Department of Commerce (UGC SAP DRS – I) School of Management, Pondicherry University, Pondicherry, India	December 17 – 19, 2010
2	**Influence of Gender and Income on Investors, in India's Derivatives Market : An Empirical Study**	Proceedings of "National Conference on Retailing in India: Emerging Dimensions to Explore Rural Potential".	Institute of Information Management & Technology, Aligarh, U.P, India	January 30 – 31, 2011
3	**Impact of Demographic Variables on Retail Investor's Behavior in Futures Market in India: An Empirical Analysis**	IJMMR (International Journal of Marketing Management Research, Volume **2, Issue, ISSN 2229 - 6883**	Sri Krishna International Research & Educational Consortium	February, 2011
4	**PEST Analysis of Indian Futures Market**	Proceedings of "National Seminar on Future of Financial Markets". **ISBN: 978-81-922331-0-9**	Centre for Management Studies, Jamia Millia Islamia, New Delhi	September 5, 2011

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LIST OF ABBREVIATIONS & SHORT FORMS USED IN THE STUDY

ADP	Adaptive Market Hypothesis
ANOVA	Analysis of Variances
BSE	Bombay Stock Exchange
CNX	'C' stands for CRISIL, 'N' stands for NSE and X stands for Exchange or Index
IT	Information and Technology
CBOT	Chicago Board of Trade
CFA	Confirmatory Factor Analysis
CONF	Confidence
CONT	Control
Dev.	Deviation
CRR	Cash Reserve Ratio
DF	Degree of Freedom
EFA	Exploratory Factor Analysis
EMF	Efficient Market Hypothesis
F&O	Futures and Options
FDI	Foreign Direct Investment
FIA	Futures Industry Association
FII	Foreign Institutional Investor
Fig.	Figure
FMCG	Fast Moving Consumer Goods

FMS	Faculty of Management Studies
FRA	Forward Rate Agreement
FTSE	Financial Times and the London Stock Exchange
GDP	Gross Domestic Products
H	Hypothesis
HRS	Health and Retirement Study
HSD	Tukey's Honestly Significant Difference
IHOR	Investment Horizon
IIP	Index of Industrial Production
IISMI	Indian Individual Secondary Market Investors
IOSCO	International Organization of Securities Commission
KMO	Kaiser-Meyer-Olkin
LEAPS	LEAPS (an acronym for *Long Term Equity Anticipation Security*) are options of longer term until expiry than other, more common, options.
LIFFE	London International Financial Futures and Options Exchange
LSD	Least Significant Difference
MINIFTY	Mini Nifty
N	Number
NDA	National Democratic Alliance
NSE	National Stock Exchange
OTC	Over the Counter
PCA	Principal Component Analysis
PLOS	Personalization of Loss

PN	Participatory Note
PPP	Purchasing Power Parity
RATD	Risk Attitude
RBI	Reserve Bank of India
RR	Repo Rate
SEBI	Securities and Exchange Board of India
S&P	Standard and Poor's
SIF	Stock/ Index Futures
SCRA	Securities Contract Regulation Act
Sig	Significance
SIMEX	Singapore International Monetary Exchange
SPSS	Statistical Package for Social Sciences
SSF	Single Stock Futures
Std.	Standard
STR	Swedish Twin Registry
T- Bills	Treasury Bills
TECH	Technology
TSE	Taiwan Stock Exchange
UPA	United Progressive Alliance
α	Alpha
χ^2	Chi-Square

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Md. Agha Nuruzzaman

CHAPTER 1

INTRODUCTION

Chapter Overview

The present study attempts to discuss the genesis of futures trading by tracing its historical development, types of traded futures, trend and growth. It also looks at regulation and policy developments, future prospects and challenges of futures market in India. The study is organized into four sections. Section I deals with the concept, definition, features and types of financial futures. Section II has been devoted to a discussion of the growth of futures market, regulations and policy development. Section III discusses status of Indian futures market vis-a-vis global futures market. The last section contains the summary and concluding remarks.

1.1 Background of the Study

Futures trading is an integral part of the maturing process of capital market of every nation. Futures contracts were introduced just as a risk management tool in the financial market. However, they can be used for price risk as well as to speculate, thereby attracting hedgers and speculators towards the market. Futures act as a double edged weapon (Bodla & Jindal, 2008) and even highly expert professionals can lose money in speculative futures trading (Kant, 2008).

Indian futures market is mainly driven by Institutional investor[1], Retail investor[2] and Proprietary[3]. In 2009-10 (figure-1.1) their participation was 13.61%, 54.86% and 31.635 respectively in terms of traded volume. This shows that retail investors have an important role in Indian derivative markets. As their numbers have exploded, it has become increasingly more important to understand the minds, motivations, and decision-making styles of retail investors.

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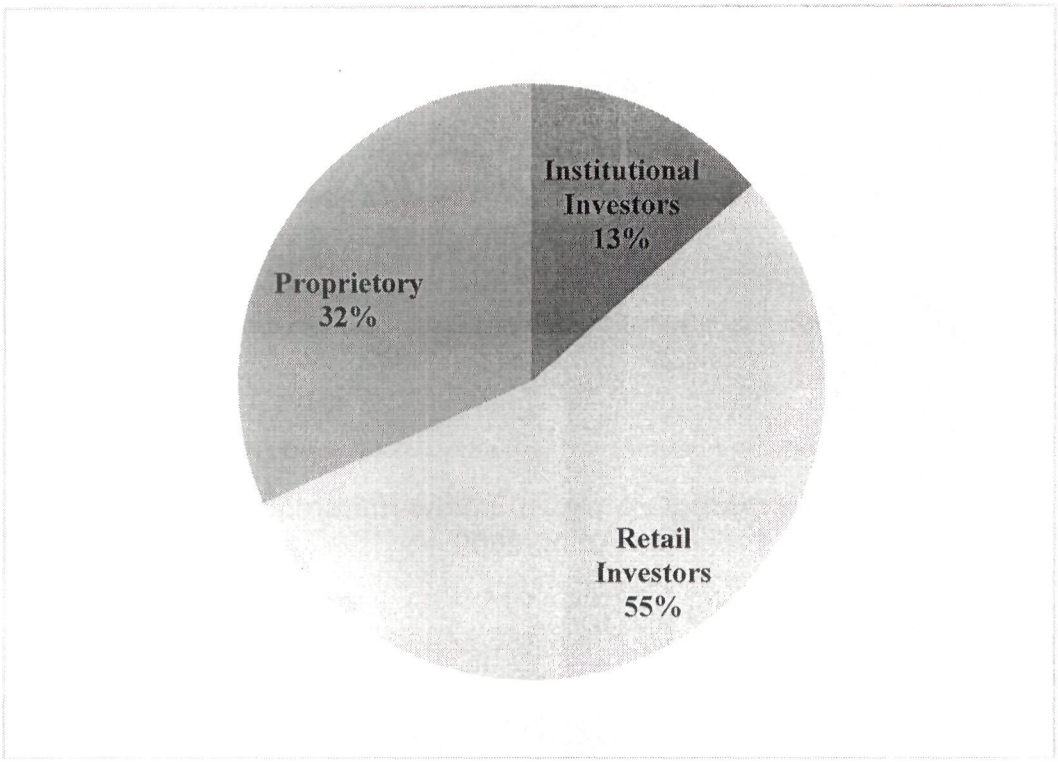
[1] Institutional investors are organizations which pool large sums of money and invest those sums in securities, real property and other investment assets.

[2] Retail investors purchase small amount of securities for him/herself, as opposed to an institutional investor. Retail investors are also called individual investor or small investor.

[3] Proprietary investment consists of trading carried out by brokerage houses on their own behalf.

Figure 1.1: Participation-wise Futures & Options turn over during 2009-2010



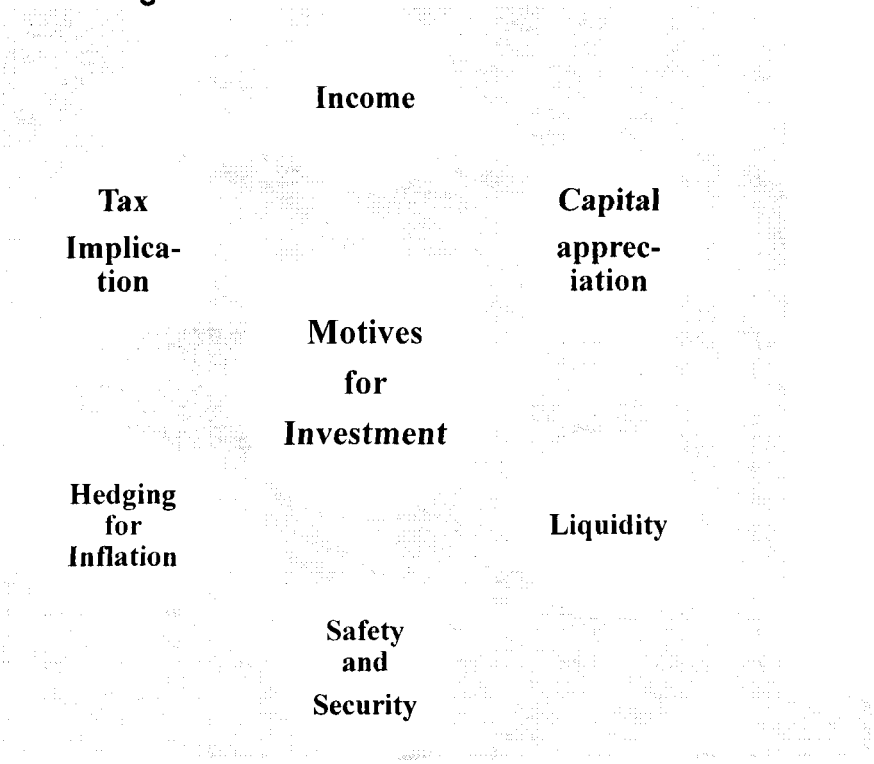
Source- Developed by the researcher

A retail investor's behavior comprehension happens to be a complex thing. Economists, sociologists and psychologists have all attempted to explain investor behavior in various ways. Economists' enquiry into investor behavior have focused largely on the 'rationality' or 'irrationality' of investor decision making process. Sociologists explain investor behavior by focusing on investors' social environments. They suggest that investors may be trying to enhance their stature within a group or society in general. Psychologists have largely focused on the investor's behavior on the basis of their attitudes, perceptions, and personality. But of course, there is a lot of overlap between the disciplines.

Investments and its Objectives

Investment is a planned task of construction and management of personal investment portfolio by an individual, and is done as per his/her requirements and life-stage (figure-1.2). It is an activity, whose outcome should match the short-term and long-term financial needs of an individual and/or his/her family (Shrotriya, 2007).

Figure 1.2: Motives of Investment

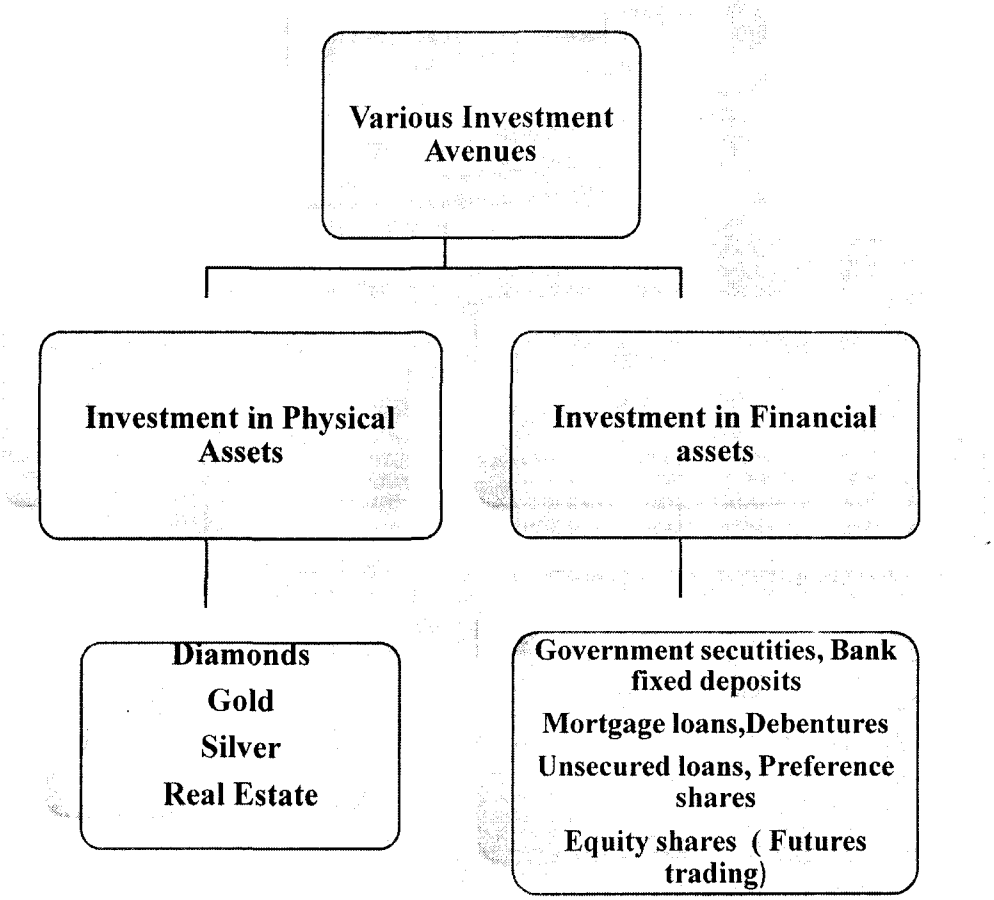


Source: Developed by the researcher

There are various motives for investment as shown in figure-1.2 - some investors wants capital appreciation, whereas some prefer liquidity, some of the investors are interested to invest their funds in tax saving instruments and some focus on safety and security. Apart from this, some of the investors want to hedge their investment against different types of risk associated with their investments. Derivatives (futures/options) are risk minimizing instruments, by using derivatives the risk of the underlying assets can be minimized to a greater extent (Tofano & Haushalter, 1996; Hentschel & Kothari, 2000; Mckenzie *et al.*, 2000; Rinalini & Kakati, 2007).

To meet the various motives of investment, investors have different investment avenues. In broader sense, they can be divided into two types (figure-1.3), investment in physical assets like gold, real estate etc. and investment in financial assets like government securities, fixed bank deposits, equity shares, etc. Each instrument has its own advantages and disadvantages. Investors invest in these assets to take advantage of them even though by assuming risks associated with these investment avenues. To protect against the risk of equity shares, investors use single stock futures as well as stock based index futures.

Figure 1.3: Investment Avenues



Source: Developed by the researcher

1.2 Concept of Futures

Futures is a part of derivatives. The term 'derivatives' refers to a broad class of financial instruments, mainly including futures and options. These instruments derive their value from the price and other related variables of the underlying asset. The assets underlying futures may be a commodity or a financial asset.

1.2.1 Definition of Financial Derivatives

Section 2(ac) of Securities Contract Regulation Act (SCRA) 1956 defines Derivative as:

- "A security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security".

- "A contract which derives its value from the prices, or index of prices, of underlying securities".

Thus a futures contract is an agreement between two parties to buy or sell an asset at a certain time in future for a certain price (Hull, 2000).

1.2.2 Underlying asset in a Futures Contract

As defined above, the value of a futures instrument depends upon the underlying asset. The underlying asset may assume many forms:

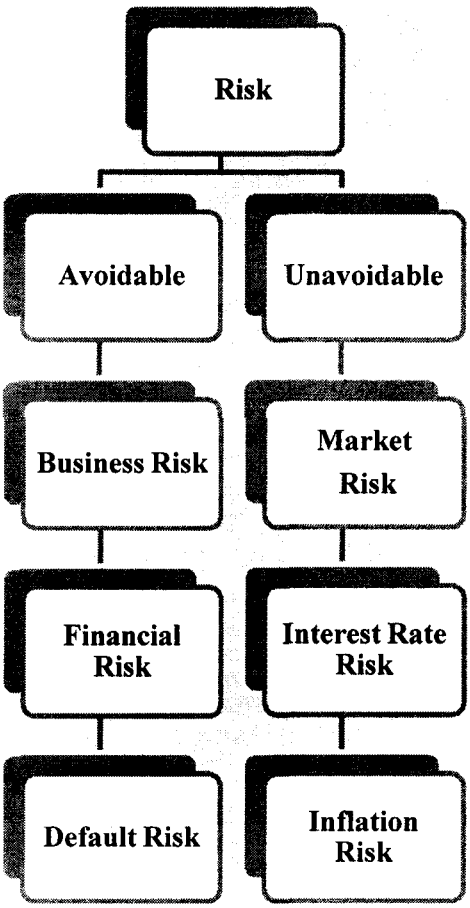
- Shares and share warrants of companies traded on recognized stock exchanges
- Commodities including grain, coffee beans, orange juice, etc.
- Precious metals like gold and silver
- Foreign exchange rates or currencies, interest rates
- Bonds of different types including medium to long term negotiable debt securities issued by governments, companies, etc.
- Short term securities such as T-bills; and
- Over- the Counter (OTC[4]) money market products such as loans or deposits.

1.2.3 Risks associated with Futures Trading

Risk can be defined as the potential for realizing low returns or even losing money, possibly preventing from meeting important objectives. In addition to that risk tolerance can be defined as the degree of uncertainty that an investor can handle in regard to a negative change in the value of his or her portfolio (Demirel & Gunay, 2011).

[4] Over-the-counter (OTC) or off-exchange trading is to trade financial instruments such as stocks, bonds, commodities or derivatives directly between two parties. It is contrasted with exchange trading, which occurs via facilities constructed for the purpose of trading (i.e. *exchanges*), such as futures exchanges or stock exchanges.

Figure 1.4: Types of Risks in Futures Market



Source: Adapted from Shrotriya, 2007

There are many kinds of risks associated with different investment avenues, (figure-1.4) broadly divided into two categories: avoidable and unavoidable risk (Shrotriya, 2007). Certain factors affect all types of investments and are beyond the control of investors, known as unavoidable risk. Whereas the other type of risk is avoidable even at the time of investment.

Futures are associated with liquidity risk of the market, interest rate risk, inflation risk, political instability risk, and economic risk of the country.

Rewards and risks are always related. It is unrealistic to expect to be able to earn above-average investment returns without taking above-average risks as well. Futures trading has the reputation of being a highly risky endeavor. It is true that a high percentage of traders eventually lose money. However, futures trading reputation as a highly risky activity is somewhat undeserved. In the words of a

renowned psychology expert Mark Douglas, "Most people like to think of themselves as risk takers, but what they really want is a guaranteed outcome with some momentary suspense to make them feel as if the outcome had been in doubt. The momentary suspense adds the thrill factor necessary to keep our lives from getting too boring."

Futures traders should be fully aware of and be comfortable with the risks involved. Managing the risks of trading is a very important part of any trader's success. Although the risks can be managed, it can never be eliminated. Risk in trading is that one cannot always claim to avoid losses by careful planning or brilliant strategy. Some losses are part of the investment process. Many people think the best traders don't lose any money and have only winning trades. This is absolutely not true. The best traders lose a lot of money, but they eventually make even more money over time.

There is no point in trading if one cannot handle the risk involved. While ordinary people tend to take losses personally as a sign of failure, good traders tend to overcome losses in due course of time. The best trading plans at times result in losses because of the amount of randomness in market price action.

1.2.4 Participants in Futures Market

There are basically three types of participants who trade in futures, mentioned as under:

Hedgers: Hedgers are interested in reducing a risk that they already face (Hull, 2000). They use futures markets to reduce or eliminate the risk associated with the price of an asset. A majority of the participants in futures market belong to this category.

By buying or selling in the futures market now, individuals and firms are able to establish a known price level for something they intend to buy or sell later in the cash market. Buyers are thus able to protect themselves against- that is, hedge against higher prices and sellers are able to hedge against lower prices. Hedgers

can also use futures to lock in an acceptable margin between their purchase cost and their selling price.

For example - a jewellery manufacturer will need to buy additional gold from its supplier in six months to produce jewellery which he is already offering in its catalogue at a published price. An increase in the cost of gold could reduce or wipe out any profit margin. To minimize this risk, the manufacturer buys futures contracts for delivery of gold in six months at a price of Rs 22000 per 10 gram. If, six months later, the cash market price of gold has risen to Rs 23000, the manufacturer will have to pay that amount to its supplier to acquire gold. But the Rs 1000 per 10 gram price increase will be offset by Rs 1000 per 10 gram profit if the futures contract bought at a price of Rs 22000 is sold for Rs 23000. The hedge, in effect, provided protection against an increase in the cost of gold. It locked in a cost of 22000, regardless of what happened to the cash market price. Had the price of gold declined, the hedger would have incurred a loss on the futures position but this could have been offset by the lower cost of acquiring gold in the cash market.

The number and variety of hedging possibilities is practically limitless. A corporate treasurer who will need to borrow money at some future date can hedge against the possibility of rising interest rates. An investor can use stock index futures to hedge against an overall increase in stock prices if he anticipates buying stocks at some future time or against declining stock prices if he or she anticipates selling stocks.

Speculators: A speculator is a trader who enters the futures market in search of profit and, by so doing, willingly accepts increased risk (Robert & James, 2006). Traders transact futures and options contracts to get extra leverage in betting on future movements in the price of an asset. They can increase both the potential gains and potential losses by usage of futures in a speculative venture.

For example - an investor makes a long position (buy) of nifty futures of current month with a lot size of 50, whose current market price is 5500. Suppose at the time of expiry the nifty futures closed at 5600, then the profit of the trader will be 50*100= 5000. But if the market declined and the futures closed at 5400, then the

trader will have to bear a loss of 50*100= Rs 5000. In speculation traders should be prepared for unlimited profit and loss.

Arbitrageurs: Arbitrage involves locking in a riskless profit by entering simultaneously into transactions in two or more markets. Their behaviour is guided by the desire to take advantage of a discrepancy between prices of more or less the same assets or competing assets in different markets (Hull, 2000). For example, if they see the futures price of an asset getting out of line with the cash price, they will take offsetting positions in the two markets to lock in a profit.

For example a stock XYZ is listed on 2 stock exchanges: NSE[5] and BSE[6]. Suppose the XYZ stock is trading at Rs. 200 on BSE, and at the same moment, the price at NSE for XYZ is Rs. 201, the arbitragers spot this price difference, and buy XYZ stock on BSE and immediately sell it at NSE. In this process the arbitrageur make Res. 1.00 per share as profit. Since arbitrageurs trade in bulks so small profits converted into a huge amount.

1.2.5. Applications of Financial Futures

There can be different motives for making investments, depending upon the need and circumstances of the individual. The various motives for investing are capital appreciation, income at specific time intervals, and liquidity when required. It also provides a kind of safety and security of life, hedging against inflation and tax implications (Shrotriya, 2007). Some of the applications of financial Futures can be enumerated as follows:

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[5] The National Stock Exchange (NSE) is a stock exchange located at Mumbai, Maharashtra, India. It is the 9th largest stock exchange in the world by market capitalization and largest in India by daily turnover and number of trades, for both equities and derivative trading.

[6] The Bombay Stock Exchange (BSE) is a stock exchange located on Dalal Street, Mumbai and is the oldest stock exchange in Asia. The BSE has the largest number of listed companies in the world.

Management of risk: This is the most important function of futures. Risk management is not about the elimination of risk rather it is about the management of risk. Financial futures provide a powerful tool for limiting risks that individuals and organizations face in the ordinary conduct of their businesses. It requires a thorough understanding of the basic principles that regulate the pricing of financial futures. Effective use of futures can save cost, and it can increase returns for the organizations.

Efficiency in trading: Financial futures allow for free trading of risk components and that leads to improving market efficiency. Traders can use a position (buy/sell) in one or more financial futures as a substitute for a position in the underlying instruments. In many instances, traders find financial futures to be a more attractive instrument than the underlying security. This is mainly because of the greater amount of liquidity in the market offered by futures as well as the lower transaction costs associated with trading a financial derivative as compared to the costs of trading the underlying instrument in cash market.

Speculation: This is not the only use, and probably not the most important use, of financial futures. Financial futures are considered to be risky. If not used properly, these can lead to financial destruction in an organization. However, these instruments act as a powerful instrument for knowledgeable traders to expose them to calculated and well understood risks in search of a reward, in the form of profit.

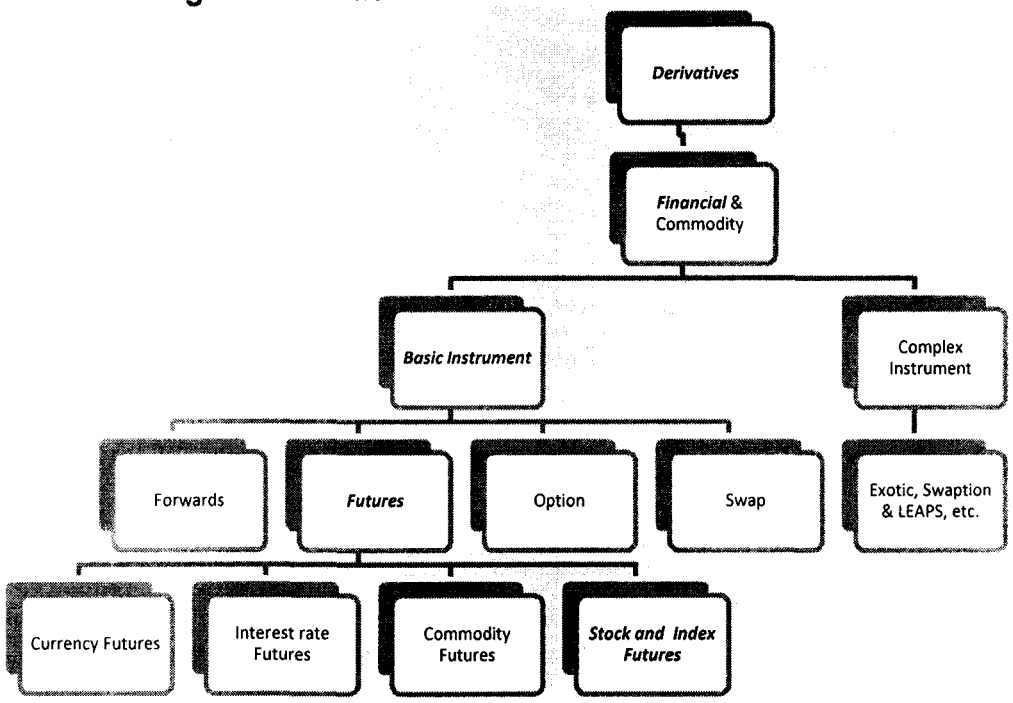
Price discovery: Another important application of futures is the price discovery which means revealing information about future cash market prices through the futures market. Futures markets provide a mechanism by which diverse and scattered opinions of future are collected into one readily discernible number which provides a consensus of knowledgeable thinking.

Price stabilization: Derivative market helps to keep a stabilizing influence on spot prices by reducing the short-term fluctuations. In other words, derivative reduces both peak and depths, simultaneously leading to price stabilization effect in the cash market for underlying asset.

1.3 Classification of Derivatives

Broadly derivatives can be classified into two categories (figure-1.5): Commodity derivatives and financial derivatives. In case of commodity futures, underlying assets can be commodities like wheat, gold, silver etc., whereas in case of financial futures underlying assets are stocks, currencies, bonds and other interest rate bearing securities etc. Since, the scope of this study is limited to only financial futures so it will be confined to the same only. There are lots of financial futures like interest rate futures, currency futures, single stock futures, stock based index futures etc. In this study single stock futures and stock based index futures have been considered as SIF (stock index futures), and the study is focused upon SIF mainly.

Figure 1.5: Basic Classification of Derivatives



Source: Developed by the researcher (*Italic* shows the area of interest of the study)

1.3.1 Forwards

A forward contract is an agreement negotiated between two parties for the delivery of a physical asset (e.g. oil or gold) at a certain time in future, for a certain price fixed at the inception of the contract (Robert & James, 2006). It is

the simplest form of derivative contract mostly entered by individuals in day to day's life.

Forward contract is a cash market transaction in which delivery of the instrument is deferred until the contract has been made. Although the delivery is made in the future, the price is determined on the initial trade date. One of the parties to a forward contract assumes a long position (buyer) and agrees to buy the underlying asset at a certain future date for a certain price. The other party to the contract known as seller assumes a short position and agrees to sell the asset on the same date for the same price. The specified price is referred to as the delivery price. The contract terms like delivery price and quantity are mutually agreed upon by the parties to the contract.

No margins are generally payable by any of the parties to the other. Forwards contracts are traded over-the-counter and not on a trading exchange like futures contract. Lack of liquidity and counter party default risks are the main drawbacks of a forward contract.

1.3.2 Futures

Futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future for a certain price (Hull, 2000). Futures is a standardized forward contact to buy (long) or sell (short) the underlying asset at a specified price at a specified future date through a specified exchange. Futures contracts are traded on exchanges that work as a buyer or seller for the counterparty. Exchange sets the standardized terms in term of quality, quantity, price quotation, date and delivery place (in case of commodity). The features of a futures contract may be specified as follows:

- These are traded on an organized exchange like LIFFE[7], NSE, BSE, CBOT[8] etc.

[7] The London International Financial Futures and Options Exchange (LIFFE, pronounced 'life') is a futures exchange based in London.

[8] The Chicago Board of Trade (CBOT), established in 1848, is the world's oldest futures and options exchange.

- These involve standardized contract terms viz. the underlying asset, lot size, the time of maturity, etc.
- These are associated with a clearing house to ensure smooth functioning of the market.
- There are margin requirements and daily settlement (marking to market) to act as further safeguard against default risk.
- These provide for supervision and monitoring of contract by a regulatory authority.
- Almost ninety percent future contracts are settled via cash settlement instead of actual delivery of underlying asset.

Futures contracts being traded on organized exchanges impart liquidity to the transaction. The Clearing house, being the counter party to both sides of a transaction, provides a mechanism that guarantees the honouring of the contract and ensuring a very low level of default (Hirani, 2007).

For example, in November 2010, a person holds 1000 shares of ABC Ltd. Current (spot) price of ABC Ltd. shares is Rs 115 at NSE. He fears that the share price of ABC Ltd may fall in next two months resulting in a substantial loss to him. He decides to enter into futures market to protect his position at Rs 115 per share for delivery in January 2011. Each contract in futures market is of 100 Shares. This is an example of equity future in which he takes short position on ABC Ltd. Shares by selling 1000 shares at Rs 115 and locks in the future price.

Following are the important types of financial futures contract:

- Stock Index futures,
- Individual Stock Future,
- Currency Futures, and
- Interest Rate Futures bearing securities like Bonds, T- Bill Futures.

Stock Index Futures

Index futures are the future contracts for which underlying asset is the cash market index. For example: CNX NIFTY[9] futures, SENSEX[10] futures, etc. Financial risks, that our ancestors faced, were totally different from the one which we face today and therefore, the financial risk management tools also differ (Sharma, 2006). Stock Index futures are financial risk management tools which have gained a lot of importance today. Stock Index futures are an indispensable tool for market risk management (Jose, 2007).

An Index is a number used to represent the changes in a set of values between a base time period and another time period. A Stock Index is a number that helps to measure the levels of the market. Most stock indices attempt to be proxies for the market they exist in. Returns on the index thus, are supposed to represent returns on the market i.e. the returns that one could get if one had the entire market in one's portfolio.

In order to benchmark the portfolio against the market some efficient proxy for the market is needed. Indexes arise out of this need for a proxy. The index value is arrived at by calculating the weighted average of the prices of a basket of stocks of a particular portfolio. This portfolio is called the index portfolio and attempts a high degree of correlation with the market.

Most indices attempt to strike a balance between the following criteria.

- Better industry representation
- Maximum coverage of market capitalization
- Higher liquidity or lower impact cost.

There are sector wise indices also. These indices provide the benchmark for sector specific funds. Fund managers and other investors who track particular sectors of

[9] CNX Nifty or simply *Nifty* is the leading index for large companies on the NSE of India. The Nifty is a well diversified 50 stock index accounting for 23 sectors of the economy.

[10] SENSEX referred to as BSE 30 is a free-float market capitalization-weighted index of 30 well-established and financially sound companies listed on BSE. The 30 component companies are representative of various industrial sectors of the Indian economy.

the economy like Technology, Pharmaceuticals, Manufacturing, Infrastructure, etc. use these indices to keep track of the sector performance.

Features of Stock Index Futures (SIF)

Rational investors with limited capital, once constrained, can achieve full benefits of diversity through investing in index futures, for maximizing the returns on their funds for a given level of risk (Malik, 2008).

SIF add flexibility to investment portfolio: First, futures are available on a wide variety of leading stock indices such as the SENSEX, CNX Nifty, Bank Nifty[11], etc. on broad indexes such as the Russell 2000[12], on international stock market indexes such as Japan's Nikkei[13] or the U.K.'s FTSE-100[14] and on many other stock market indexes. Virtually wherever there is stock market exposure, there is a stock index contract to cover or capitalize on it.

Second, SIF are available in different lot sizes such as CNX Nifty, MINIFTY[15], SENSEX, and CHOTA SENSEX[16] so that traders can trade easily according to their specific needs.
Third, many of the major SIF also offer options on the futures contract, increasing the strategies available to fit almost any market condition.

SIF create the possibility of speculative gains using leverage: A relatively small amount of margin money controls a large amount of capital represented in a

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[11] Bank Nifty is the leading index for large banks on the NSE of India. The Bank Nifty is a well diversified 12 stock index accounting for only bank sector of the economy.

[12] The Russell 2000 Index is a small-cap stock market index of the bottom 2,000 stocks in the Russell 3000 Index of U.S stock market.

[13] The Nikkei is Japan's leading stock index, comprised of 225 top companies listed on the Tokyo Stock Exchange.

[14] The FTSE 100 Index, also called FTSE 100, FTSE, is a share index of the 100 most highly capitalized UK companies listed on the London Stock Exchange.

[15] It is mini futures contracts on the Nifty@ in market Lot of twenty in addition to the existing contracts available on the Nifty@ in a larger market lot.

[16] It is mini futures & options contracts on the SENSEX@ in Market Lot of FIVE in addition to the existing contracts available on the SENSEX@ in a larger market lot.

stock index contract, a small change in the index level might produce a profitable return on one's investment if he/she is right about the market's direction.

SIF can be easily traded online: Now-a-days many stock index futures contracts use an electronic platform to execute trades quickly and easily, investors are trading from their homes and offices, or even from places afar while on tours with the help of internet.

SIF ensure hedging for a stock portfolio in a falling market: In the financial world, share market fluctuation is very abnormal. That's why one can get "insurance" for one's stock portfolio by using stock index futures and options. In futures, unlike purchasing options as insurance, there is no time value erosion of the futures position.

SIF maintain stock portfolio during stock market corrections: Investors may not need "insurance" all the time, but there are certain times when they would like less exposure to stocks. Yet, they don't want to sell off part of a stock portfolio that has taken them a long time to put together and looks like a sound, long-term investment program. Perhaps they are worried that the government might do something to give the stock market a push or that some national or international developments could cause a severe stock market correction. Every market goes through periods when it is more vulnerable to corrections. If investors feel that they need protection for only a few days to withstand a temporary weak period in the market, they can sell stock index futures instead of disturbing their stock market portfolio.

SIF sell as easily as investors can buy: One of the major advantages of futures markets, in general, is that one can sell contracts as readily as one can buy them and the amount of margin required is the same. This also provides the liquidity required by the investors.

SIF substitute for a future stock or mutual fund transaction: Stock index futures can give investors quick exposure to the stock market and give them time to decide what they want to do on a more permanent basis. Stock index futures are meant to be short-term positions, not a long-term holding strategy.

SIF transfer risk quickly and efficiently any time during the day - or even at night: Whether investors are speculating, looking for insurance protection (hedging), or temporarily substituting futures for a later cash transaction, most stock index futures trades can be accomplished quickly and efficiently. Though every stock index futures market does not have sufficient liquidity to allow easy entry and exit with minimum slippage, but markets such as S&P 500 futures[17] can handle almost any size order at any time during the trading session. With electronic trading in contracts such as the E-mini S&P 500[18], trading sessions are now stretching almost around the clock.

1.3.3 Options

In case of futures contract, both parties are under obligation to perform their respective obligations out of a contract. But an options contract as the name suggests, is in some sense, an optional contract. An option is the right, but not the obligation, to buy or sell something at a stated date at a stated price. A "call option" gives one the right to buy; a "put option" gives one the right to sell. Options are the standardized financial contract that allows the buyer (holder) of the option, i.e. the right at the cost of option premium, not the obligation, to buy (call options) or sell (put options) a specified asset at a set price on or before a specified date through exchanges.

Options contracts are of two types: call options and put options. A call options gives the holder (buyer/one who is long call), the right to buy specified quantity of the underlying asset at the strike price on or before expiration date. The seller (one who is short call) however, has the obligation to sell the underlying asset if the buyer of the call option decides to exercise his option to buy.

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[17] The S&P 500 is a free-float capitalization-weighted index published since 1957 of the prices of 500 large-cap common stocks actively traded in the United States stock market exchanges: the New York Stock Exchange and the NASDAQ.

[18] The S&P e-mini futures are futures contracts on the S&P 500 index traded on the Chicago Mercantile Exchange's Globex trading Platform. They are a way to invest in the S&P 500.

1.3.4 Swaps

A swap can be defined as a barter or exchange. It is a contract whereby parties agree to exchange obligations that each of them have under their respective underlying contracts or we can say, a swap is an agreement between two or more parties to exchange stream of cash flows over a period of time in the future. The parties that agree to the swap are known as counter parties. The two commonly used swaps are: i) Interest rate swaps which entail swapping only the interest related cash flows between the parties in the same currency, and ii) Currency swaps: These entail swapping both principal and interest between the parties, with the cash flows in one direction being in a different currency than the cash flows in the opposite direction.

1.4 History of Futures Markets in India

Futures markets in India have been in existence in one form or the other for a long time. In the area of commodities, the Bombay Cotton Trade Association started futures trading way back in 1875. In 1952, the Government of India banned cash settlement and options trading. Futures trading shifted to informal forwards markets. In recent years, government policy has shifted in favour of an increased role of market-based pricing and less suspicious futures trading. The first step towards introduction of financial futures trading in India was the promulgation of the Securities Laws (Amendment) Ordinance, 1995. It provided for withdrawal of prohibition on options in securities. The last decade, beginning the year 2000, saw lifting of ban on futures trading in many commodities. Around the same period, national electronic commodity exchanges were also set up. Table 1.1 gives a chronology of introduction of derivatives in India.

Futures trading commenced in India in June 2000 after Securities and Exchange Board of India SEBI granted the final approval of this effect in May 2001 on the recommendation of L. C Gupta committee[19]. SEBI permitted the derivative

[19] SEBI appointed L.C. Gupta Committee on 18th November 1996 to develop appropriate regulatory framework for the derivatives trading and to recommend suggestive bye-laws for Regulation and Control of Trading and Settlement of Derivatives Contracts.

segments of two stock exchanges, NSE and BSE, and their clearing house/corporation to commence trading and settlement in approved futures contracts. Initially, SEBI approved trading in index futures contracts based on various stock market indices such as, S&P CNX, Nifty and Sensex. Subsequently, index-based trading was permitted in options as well as individual securities.

Table 1.1: Indian Futures Market and Its Developments

Date	Progress
December 14, 1995	NSE asked SEBI for permission to trade index futures.
November 18, 1996	SEBI setup L. C. Gupta Committee to draft a policy framework for index futures.
May 11, 1998	L. C. Gupta Committee submitted report.
July 7, 1999	RBI gave permission for OTC forward rate agreements (FRAs) and interest rate swaps
May 24, 2000	SIMEX chose Nifty for trading futures and options on an Indian index.
May 25, 2000	SEBI gave permission to NSE and BSE to do index futures trading.
June 9, 2000	Trading of BSE Sensex futures commenced at BSE.
June 12, 2000	Trading of Nifty futures commenced at NSE.
August 31, 2000	Trading of futures and options on Nifty to commence at SIMEX.
June 4, 2001	Trading of Equity Index Options at NSE
July 2, 2001	Trading of Stock Options at NSE
November 9, 2002	Trading of Single Stock futures at BSE
June 23, 2003	Trading of Interest Rate Futures at NSE
September 13, 2004	Weekly Options at BSE
January 1, 2008	Trading of Chhota (Mini) Sensex at BSE
January 1, 2008	Trading of Mini Index Futures & Options at NSE
August 29, 2008	Trading of Currency Futures at NSE
October 2, 2008	Trading of Currency Futures at BSE

Source: Compiled from BSE and NSE

The trading in BSE Sensex options commenced on June 4, 2001 and the trading in options on individual securities commenced in July 2001. Futures contracts on individual stocks were launched in November 2001. The Futures trading on NSE commenced with S&P CNX Nifty Index futures on June 12, 2000. The trading in index options commenced on June 4, 2001 and trading in options on individual

securities commenced on July 2, 2001. Single stock futures were launched on November 9, 2001. The index futures and options contract on NSE are based on S&P CNX. In June 2003, NSE introduced Interest Rate Futures which were subsequently banned due to pricing issue.

1.5 Regulation of Futures Trading in India

The regulatory framework in India is based on the L.C. Gupta Committee Report, and the J.R. Varma Committee Report[20]. It is mostly consistent with the IOSCO[21] principles and addresses the common concerns of investor protection, market efficiency and integrity and financial integrity. The L.C. Gupta Committee Report provides a perspective on division of regulatory responsibility between the exchange and the SEBI. It recommends that SEBI's role should be restricted to approving rules, byelaws and regulations of a futures exchange also to approving the proposed futures contracts before commencement of their trading.

It emphasizes the supervisory and advisory role of SEBI with a view to permitting desirable flexibility, maximizing regulatory effectiveness and minimizing regulatory cost. Regulatory requirements for authorization of Futures brokers/dealers include relating to capital adequacy, net worth, certification requirement and initial registration with SEBI. It also suggests establishment of a separate clearing corporation, maximum exposure limits, mark to market margins, margin collection from clients and segregation of clients' funds, regulation of sales practice and accounting and disclosure requirements for futures trading. The J.R. Varma committee suggests a methodology for risk containment measures for index-based futures and options, stock options and single stock futures. The risk containment measures include calculation of margins, position limits, exposure limits and reporting and disclosure. The technical infrastructure like clearing,

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[20] The SEBI Board while approving the introduction of index futures trading put up the setting up of a group to recommend measures for risk containment in the derivative market in India. Accordingly, SEBI constituted a group in June, 1998: with Prof. J.R. Varma, as Chairman.

[21] International Organization of Securities Commission (IOSCO) is an international organization that brings together the regulators of the world's securities and futures markets.

settlement systems, transparency, and corporate governance seems well developed, a main challenge going forward may be expanding over time the capacity to handle a high volume of transactions (Ghosh, 2006).

1.6 Derivatives products traded in India

India has many stock markets among them National Stock Exchange (NSE), and Bombay Stock Exchange (BSE) are the most famous markets not only in India but also in the world. Lots of derivative products are being traded in both the markets.

1.6.1 Derivatives products traded in Segment of BSE

The BSE created history on June 9, 2000 when it launched trading in Sensex based futures contract for the first time. It was followed by trading in index options on June 1, 2001; in stock options and single stock futures (31 stocks) on July 9, 2001 and November 9, 2002, respectively. Currently, the number of stocks under single futures and options is 1096. Table 1.2 summarily specifies the derivative products and their date of introduction on the BSE.

Table 1.2: Products Traded in Derivatives Segment of the BSE

S.No	Product Traded with underlying asset	Introduction Date
1	Index Futures- Sensex	June 9, 2000
2	Index Options- Sensex	June 1, 2001
3	Stock Option on 109 Stocks	July 9, 2001
4	Stock futures on 109 Stocks	November 9, 2002
5	Weekly Option on 4 Stocks	September 13, 2004
6	Chhota (mini) SENSEX	January 1, 2008
7	Futures & Options on Sector-wise indices namely BSE TECK, BSE FMCG, BSE Metal, BSE Bankex and BSE Oil & Gas.	N.A
8	Currency Futures on US Dollar Rupee	October 1, 2008

Source: Compiled from BSE website: www.bseindia.com

BSE achieved another milestone on September 13, 2004 when it launched Weekly Options, a unique product unparalleled worldwide in the derivatives markets. It

permitted trading in the stocks of four leading companies namely; Satyam, State Bank of India, Reliance Industries and Tata Steel.

Chhota (mini) SENSEX was launched on January 1, 2008. With a small or 'mini' market lot of 5, it allows for comparatively lower capital outlay, lower trading costs, more precise hedging and flexible trading. It is a step to encourage and enable small investors to mitigate risk and enable easy access to India's most popular index, SENSEX, through futures & options. Currency futures were introduced on October 1, 2008 to enable participants to hedge their currency risks through trading in the U.S. dollar-rupee future platforms.

1.6.2 Derivatives Products Traded in Segment of NSE

Table 1.3 presents a description of the types of products traded at futures and options segment of NSE. NSE started trading in index futures, based on popular S&P CNX Index, on June 12, 2000 as its first derivatives product.

Table 1.3: Products Traded in Futures & Options Segment of NSE

1	Index Futures- S&P CNX Nifty	June 12, 2000
2	Index Options- S&P CNX Nifty	June 4, 2001
3	Stock Option on 233 Stocks	July 2, 2001
4	Stock futures on 233	November 9, 2001
5	Interest Rate Futures- T – Bills and 10 Years Bond	June 23, 2003
6	CNX IT Futures & Options	August 29, 2003
7	Bank Nifty Futures & Options	June 13, 2005
8	CNX Nifty Junior Futures & Options	June 1, 2007
9	CNX 100 Futures & Options	June 1, 2007
10	Nifty Midcap 50 Futures & Options	October 5, 2007
11	Mini index Futures & Options - S&P CNX Nifty index	January 1, 2008
12	Long Term Option contracts on S&P CNX Nifty Index	March 3, 2008
13	Currency Futures on US Dollar Rupee	August 29, 2008
14	S& P CNX Defty Futures & Options	December 10, 2008

Source: Compiled from NSE website

Trading on index options was introduced on June 4, 2001. Futures on individual securities started on November 9, 2001. The futures contracts are available on 2338 securities stipulated by the Securities & Exchange Board of India (SEBI). Trading in options on individual securities commenced from July 2, 2001. The options contracts are American style and cash settled and are available on 233 securities.

Trading in interest rate futures was introduced on 24 June 2003 but it was closed subsequently due to pricing problem. The NSE achieved another landmark in product introduction by launching Mini Index Futures & Options with a minimum contract size of Rs one lakh. NSE created history by launching currency futures contract on US Dollar-Rupee on August 29, 2008 in Indian Derivatives market.

1.7 Growth of Derivatives Market in India

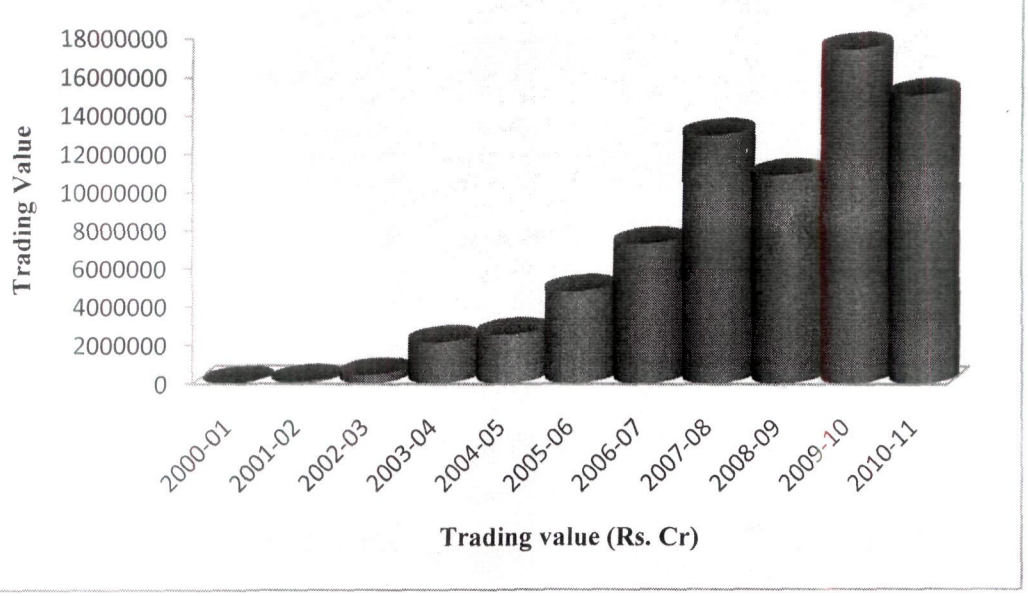
The futures and options segment of NSE witnessed huge increase in volumes during 2009-10 and continued to achieve a commendable place on the international front. Globally NSE (National Stock Exchange of India) ranked in the fifth position in terms of futures and options traded in 2010. Among the top ten equity index futures and options, the Indian S&P CNX Nifty Index Options comes in fourth position whereas S&P CNX Nifty Index Futures in ninth rank.

The futures trading in India commenced on June - 2000 with futures trading on S&P CNX Nifty Index, and Sensex Index. Subsequently, the product base has been increasing. The derivatives trading system in India provides a fully automated screen-based trading for all kind of derivative products available on stock exchange on a nationwide basis. It supports an anonymous order driven market, which operates on a strict price/time priority. It provides tremendous flexibility to users in terms of kinds of orders that can be placed on the system.

Equity derivatives market in India has registered an "explosive growth" (Figure-1.6) and is expected to continue the same in the years to come. Introduced in 2000, financial derivatives market in India has shown a remarkable growth both in terms of volumes and numbers of traded contracts. NSE alone accounts for 99 percent of the derivatives trading in Indian markets. The introduction of

derivatives has been well received by stock market players. Trading in derivatives gained popularity soon after its introduction. In due course, the turnover of the NSE derivatives market exceeded the turnover of the NSE cash market.

Figure 1.6: Business growth of Futures and Options



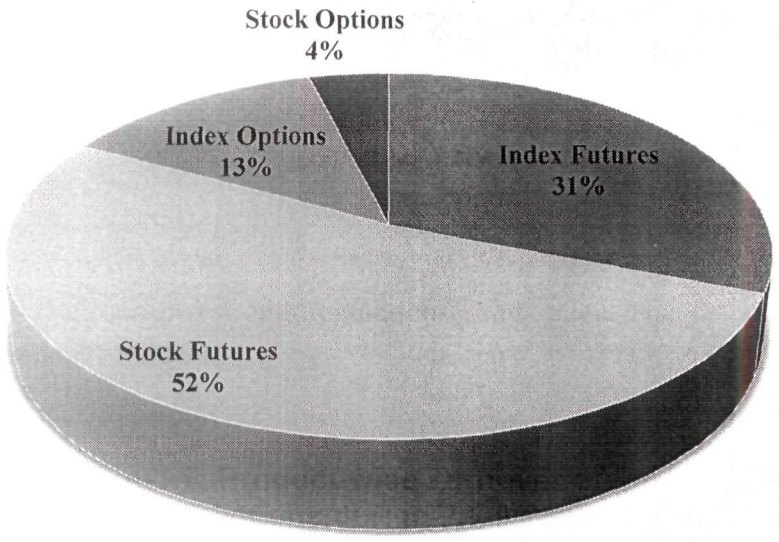
Source: Developed by the researcher based on nseindia.com

Among all the products traded on NSE in futures and options (F&O) segment, single stock futures also known as equity futures, are most popular in terms of volumes and number of contract traded, followed by index futures with turnover shares of 52 percent and 31 percent, respectively (Figure- 1.7). In case of BSE, index futures outperform stock futures.

Despite encouraging growth and developments, industry analysts feel that the Futures market has not realized its full potential in terms of growth & trading yet. Analysts point out that the equity derivative markets on the BSE and NSE has been limited to only four products- index futures, index options and individual stock futures and options, which in turn, are limited to certain select stocks only. Although recently NSE and BSE has added more products in their derivatives segment (Weekly Options, Currency futures, Mini Index etc.) but still it is far less than the depth and variety of products prevailing across many developed capital markets. Successful development of futures markets must be built on a foundation

of solid product design, strong regulations, and sound market infrastructure (Fratzscher, 2006).

Figure-1.7: Product-wise Turnover of Futures &Options during 2009-2010



Source: Developed by Researcher based on NSE fact book 2010

1.8 Indian Futures Market vis-a vis Global Futures Market

India's equity derivatives market is significant in size and dominates the global trading in equity futures. Equity derivatives markets are less developed in other Asian countries, even ones where cash market activity is strong (Purfield *et al.*, 2006). Variation in derivatives markets development relate mainly to differences in the operational and legal infrastructure (Fratzscher, 2006). The Futures Industry Association (FIA[22]) annual survey 2010 conducted by Acworth found that global futures and options industry has returned to rapid growth as per the 2009 leveling.

[22] FIA: The Futures Industry Association is the leading trade organization for the futures, options and OTC cleared derivatives markets. It is the only association representative of all organizations that have an interest in the listed derivatives markets.

Year 2010 showed the total number of contracts traded on derivatives exchanges around the world reaching 22.3 billion, which is 25.6% higher than 2009.

Table-1.4 Growth of Global Derivatives in term of Volume

	Jan-Dec 2009	Jan-Dec 2010	% Change
Futures	8,188,016,317	11,182,528,178	36.6%
Options	9,556,587,701	11,112,719,271	16.3%
Total	17,744,604,018	22,295,247,449	25.6%

Volume wise the global futures and options grew by 36.6% and 16.3% respectively (table-1.4), and equity indices improved to 16.2%, at the same time individual equities also showed upturn of 12.5% (table-1.5).

Table 1.5 Growth of Global Derivatives Category wise

Category	Jan-Dec 2009	Jan-Dec 2010	% Change
Equity Indices	6,382,027,655	7,413,788,422	16.2%
Individual Equities	5,588,884,611	6,285,494,200	12.5%

The FIA survey table-1.6 showed in the year 2010 National Stock Exchange of India and Multi Commodity Exchange of India (includes MCX-SX) achieved 5th and 9th rank among the top ten derivatives exchanges worldwide.

Table-1.6 Top 10 Derivatives Exchanges Worldwide

Rank	Exchange	Jan-Dec 2009	Jan-Dec 2010	% Change
1	Korea Exchange	3,102,891,777	3,748,861,401	20.8%
2	CME Group (includes CBOT and Nymex)	2,589,555,745	3,080,492,118	19.0%
3	Eurex (includes ISE)	2,647,406,849	2,642,092,726	-0.2%
4	NYSE Euronext (includes U.S. and EU markets)	1,729,965,293	2,154,742,282	24.6%
5	National Stock Exchange of India	918,507,122	1,615,788,910	75.9%
6	BM & F Bovespa	920,375,712	1,422,103,993	54.5%
7	CBOE Group (includes CFE and C2)	1,135,920,178	1,123,505,008	-1.1%
8	Nasdaq OMX (includes U.S. and Nordic markets)	815,545,867	1,099,437,223	34.8%
9	Multi Commodity Exchange of India (includes MCX-SX)	385,447,281	1,081,813,643	180.7%
10	Russian Trading Systems Stock Exchange	474,440,043	623,992,363	31.5%

Ranked by Number of Futures and Options traded and/or cleared in 2010

The FIA survey also showed that globally NSE (National Stock Exchange of India) ranked in the fifth position in terms of futures and options traded in 2010. Among the top ten equity index futures and options, the Indian S&P CNX Nifty Index Options comes in fourth position whereas S&P CNX Nifty Index Futures in ninth rank (table-1.7)

In 2010, FIA surveyed the well known 78 exchanges of the world and found that Indian market falls in the top ten most powerful ones. The data amply establish Indian market to be much stronger than before and better than many others in comparison.

Table- 1.7 Top 10 Equity Index Futures and Options Worldwide

Rank	Contract	Jan-Dec 2009	Jan-Dec 2010	% Change
1	Kospi 200 Options, KRX	2,920,990,655	3,525,898,562	20.7%
2	E-mini S&P 500 Index Futures, CME	56,314,143	555,328,670	-0.2%
3	SPDR S&P 500 ETF Options	347,697,659	456,863,881	31.4%
4	S&P CNX Nifty Index Options, NSE India	321,265,217	529,773,463	64.9%
5	Euro Stoxx 50 Futures, Eurex	333,407,299	372,229,766	11.6%
6	Euro Stoxx 50 Index Options, Eurex	300,208,574	284,707,318	-5.2%
7	RTS Index Futures, RTS	150,019,917	224,696,733	49.8%
8	S&P 500 Index Options, CBOE	154,869,646	175,291,508	13.2%
9	S&P CNX Nifty Index Futures, NSE India	195,759,414	156,351,505	-20.1%
10	Nikkei 225 Mini Futures, OSE	104,738,309	125,113,769	19.5%

Ranked by Number of Contracts traded and/or cleared in 2010; **Source:** http://www.futuresindustry.org/volume-.asp

1.9 Investor's Behavior in Investment Decision

Behavioral economics and its related area of study, behavioral finance, use social, cognitive and emotional factors in understanding the economic decisions of individuals and institutions performing economic functions, including consumers, borrowers and investors, and their effects on market prices, returns and the resource allocation. Behavioral analysts are not only concerned with the effects of market decisions but also with public choice, which describes another source of economic decisions with related biases towards promoting self-interest.

A discussion on the investors' behavioral biases will throw light on the impact of these biases on the investment decision making process. Behavioral finance has made a foray into this aspect, dealing with supports and barriers coming from the investor's personal temperament and behavior. Some of the most prominent behavioral biases which cause irrationality in investment decision are mentioned below:

Prospect Theory: Unlike the expected utility theory of Von Neumann-Morgenstern, Tversky and Kahneman who have found that people place different weights on gains and losses and on different ranges of probability, investors behave differently. They are much more distressed by oncoming losses than they are happy by corresponding gains. Investors will respond differently to equivalent situations depending on whether it is presented in the context of losses or gains. They are willing to take more risks to avoid losses than to realize gains. Faced with sure gain, most investors are risk averse; but faced with sure loss, investors become risk-takers.

Prospect theory also presents the occurrence of the disposition effect. It is a tendency among investors to hold on to losing stocks for long and sell winning stocks too soon. The most logical course of action would be to hold on to winning stocks in order to further gains and to sell losing stocks in order to prevent escalating losses.

Salience (Anchoring) Bias: Habitually, the investors have the tendency to attach or "anchor" their thoughts around a reference point even if it may not have any

logical relevance to their decisions. The investors try to buy the stocks at discount, whose prices have recently declined from a high, in the hope to make gain. The decision might have been based on the unrelated figures and statistics, because the stock prices do fall due to certain underlying ground rules. Kahneman and Tversky (1979) have provided an academic evidence of the presence of strong anchoring effect even in random cases.

Mental Accounting: Some investors have the propensity of sorting out the found money and the earned money from the standpoint of the purpose for which it is utilized. Found money is rashly spent where as extra caution is used to exhaust earned money, though there is no logical reason to distinguish. Money kept separately in a fund earning lower rate of interest is never used to pay off a debt with higher rate of interest. This type of mental accounting results in overall loss from investment point of view.

Confirmation Bias: The investors are more likely to seek information supporting their original idea about an investment rather than searching out information contradicting it. They tend to confirm their actions with the filtered data. In other words, they try to concentrate on green flags only while ignoring the disastrous red flags. As a result, this bias can often result in faulty decision making because one-sided information tends to distort an investors' frame of reference, leaving them with an incomplete picture of the situation.

Hindsight Bias: Investors rely on their perceptions, auspicious or ominous thoughts. Most of them have a tendency to believe after an event has occurred, that they had predicted it before it happened. This kind of coincidence give investors an illusion that they have predicted the past better than they actually did, they may also believe that they can predict the future better than they actually can. The belief that they can easily predict the future based on the past events may result in incorrect forecasting and disastrous investment decision.

Gambler's Fallacy: Often, investors wrongly believe that the beginning of a certain chance event is less likely to happen following an event or a series of events. Investors can easily fall prey to this gambler's fallacy. For example, some investors believe that they should liquidate a position after it has gone up in a

series of successive trading sessions because they don't believe that the position is likely to continue going up. Conversely, other investors might hold on to a stock that has fallen in multiple sessions because they view further declines as 'implausible'. Just because a stock has gone up on six consecutive trading sessions does not mean that it is likely to go up in the next session too. This is because past events do not change the probability that certain events will occur in the future.

Herd Behavior: One of the most infamous financial events in recent memory is the bursting of the Internet bubble. This happened because of a herd behavior among investors. They have a tendency to mimic the actions of a larger group without paying heed to rational or irrational ones. There are two reasons for such behavior: first, is the social pressure of conformity. Investors have a natural desire to be accepted by a group, rather than be branded as an outcaste. Second, is the common rationale that it's unlikely that such a large group could be erroneous or mistaken. After all, even if it is convinced that a particular idea or course of action is irrational or incorrect, the investor might still follow the herd, believing they know something that he does not. Researchers have theorized that investors follow the crowd and conventional wisdom to avoid the possibility of feeling regret in the event that their decisions prove to be incorrect. Many investors find it easier to buy a popular stock and rationalize it going down since everyone else owned it and thought so highly of it. Even though they lose, they feel relaxed because others have also lost. Justification is easy when a bad event occurs to others also. Buying a stock with a bad image is harder to rationalize if it goes down. The 'Crowd effects' have resulted in horrible disturbances in the stock market during last few years (Showry &Tabassum, 2007).

Over Confidence: Investors' knowledge of an area often makes them overconfident. However, increasing levels of confidence frequently show no correlation with greater success. Investors are consistently over-confident in their ability to surpass the market, however, most fail to do so (Montiner, 2006). They see other investors' decisions as the result of outlook and temper, but they see their own choice as rational and proper. They frequently trade on the information they believe to be superior and relevant, when in fact, it is not and is fully

discounted by the market. This results in frequent trading and consistently high volumes in financial markets (Odean, 1999).

Availability Bias: According to Efficient Market Hypothesis, new information should more or less be reflected instantly in a security's price. Investors tend to heavily weigh their decisions toward more recent information, making any new opinion biased toward that latest news. Accordingly, good news should raise a company's share price and that gain in share price should not decline if no new information has been released since. But in reality, participants in the stock market predictably overreact to new information, creating a larger than proportionate effect on a security's price. Furthermore, it also appears that this price rush is not a permanent trend although the price change is usually sudden and sizable, the surge erodes over time (Werner & Richard, 1985).

Market extremity: In recent years it has been experienced that the market frequently misprices the stocks. This is most often caused by human emotions of fear and greed (Statman, 1988). At the height of optimism, greed moves the stocks beyond their intrinsic value, creating an overpriced market. At other time, fear moves prices below intrinsic value, creating an undervalued market. It appears that, markets invariably move to undervalued and overvalued extremes because human nature falls victim to greed and/or fear.

1.10 Summary and Concluding Remarks

The financial industry across the world has been redefined and revolutionized by the advancement of futures, lending futures a well deserved and extremely significant place among all the financial products. Futures are risk management tools that help in effective management of risk by various stakeholders. Futures provide an opportunity to transfer risk, from the one who wishes to avoid it; to one, who wishes to accept it. India's experience with the launch of equity futures has been extremely encouraging and successful. The futures turnover on the NSE has surpassed the equity market turnover. Significantly, its growth in the recent years has surpassed the growth of its counterpart globally.

India is one of the most successful developing countries in terms of a vibrant market for exchange-traded derivatives. This reiterates the strengths of the modern development of India's securities markets, which are based on nationwide market access, anonymous safe and secure electronic trading, and a predominantly retail market. There is an increasing sense that the equity futures market is playing a major role in shaping price discovery. Factors like increased volatility in financial asset prices; growing integration of national financial markets with international markets; development of more sophisticated risk management tools; wider choices of risk management strategies to economic agents and innovations in financial engineering, have been driving the growth of financial futures worldwide and have also fuelled the growth of futures here, in India. The significance and contribution of futures can be highlighted in the words of longest serving Governor of Federal Reserve, Alan Greenspan: "Although the benefits and costs of futures remain the subject of spirited debate, the performance of the economy and the financial system in recent years suggest that those benefits have materially exceeded the costs."

1.11 Motivation for Research

It comes as no surprise that India's economy is finally on a rise. Many more of its people are investing their money, as their income is growing. The present scenario gives ample evidence regarding the growing importance of futures trading, as more and more people are showing interest in it. Investors' behavior, challenges and opportunities are thus major issues on the list of potential future research for researchers and practitioners.

The following developments indicate growing awareness in the academic circle towards futures trading:

- There are several journals that have reported studies on various issues related to investors' behavior, futures trading and futures market. For example, *The Journal of Finance*, *Journal of Financial Economics*, *Journal of Futures Market*, *Econometrica*, *Journal of Behavioral Finance*, *Journal of Portfolio Management*, *International Journal of Managerial Finance*, *Journal of*

Applied Finance, Journal of Derivatives Market, Journal of Financial research, etc.

- Conferences, workshops and seminars are organized globally to address the investors and researchers.
- SEBI, Broking companies have also organized different types of programs to educate their investors about futures trading.

This research aims to understand the Indian futures market, its development, the behavior of retail investors in stock based index futures (SIF) trading. The research attempts to bring together different aspects of futures traders like opportunities, challenges of futures market, type of products, retail investors' problems in futures trading. This study will contribute to the betterment of financial analysts, investors and the economy of the country.

1.12 Scope of the Study

In order to study the below mentioned aspects, the researcher has considered SIF throughout the study, the term SIF in this study refers to stock based index futures and single stock futures. The present study is undertaken keeping in view the retail and small trader in Indian SIF market to understand and address the following issues:

- Different aspects of SIF.
- Retail investors' awareness in SIF.
- Problems faced by retail investors' in SIF.
- Opportunities in SIF trading.
- Suitable futures product development for the investors.
- Measures to be implemented by SEBI to build the retail investors' confidence in SIF trading.

1.13 Research Objectives

Keeping in view the research gap on different parameters of retail investors' and stock and index futures trading following objectives have been framed:

- To study the frame work of SIF market in India.
- To study the awareness of retail investors in SIF trading.

- To study the influence of demographic variables on investor's SIF trading behavior.
- To study the trading attitude of retail investors' in SIF trading.
- To explore the retail investors' behavior in SIF trading.
- To study the opportunities and challenges of SIF market in India.
- To come up with suggestions on the basis of findings of the study.

1.14 Organization of Research

The organization of this thesis depicted in Figure 1.4 the study is divided in seven chapters.

Chapter 1, the current chapter, offers an overview of the study. It includes introduction of futures market, classification of derivatives, index futures, risk in futures, futures market in India, motivation of the research, broad research objectives and chapter-wise plan of the study.

Chapter 2, provides a review of extant literature relevant to the research problem. The body of literature, as a whole, provides rationale for the scope and the conceptual framework of this study.

Chapter 3, discusses the research methodology adopted for the study. Research design, instrument development and pre-testing, Survey method, and Statistical tools employed in data analysis are also mentioned. Further, the formulation of hypotheses of the study are also presented.

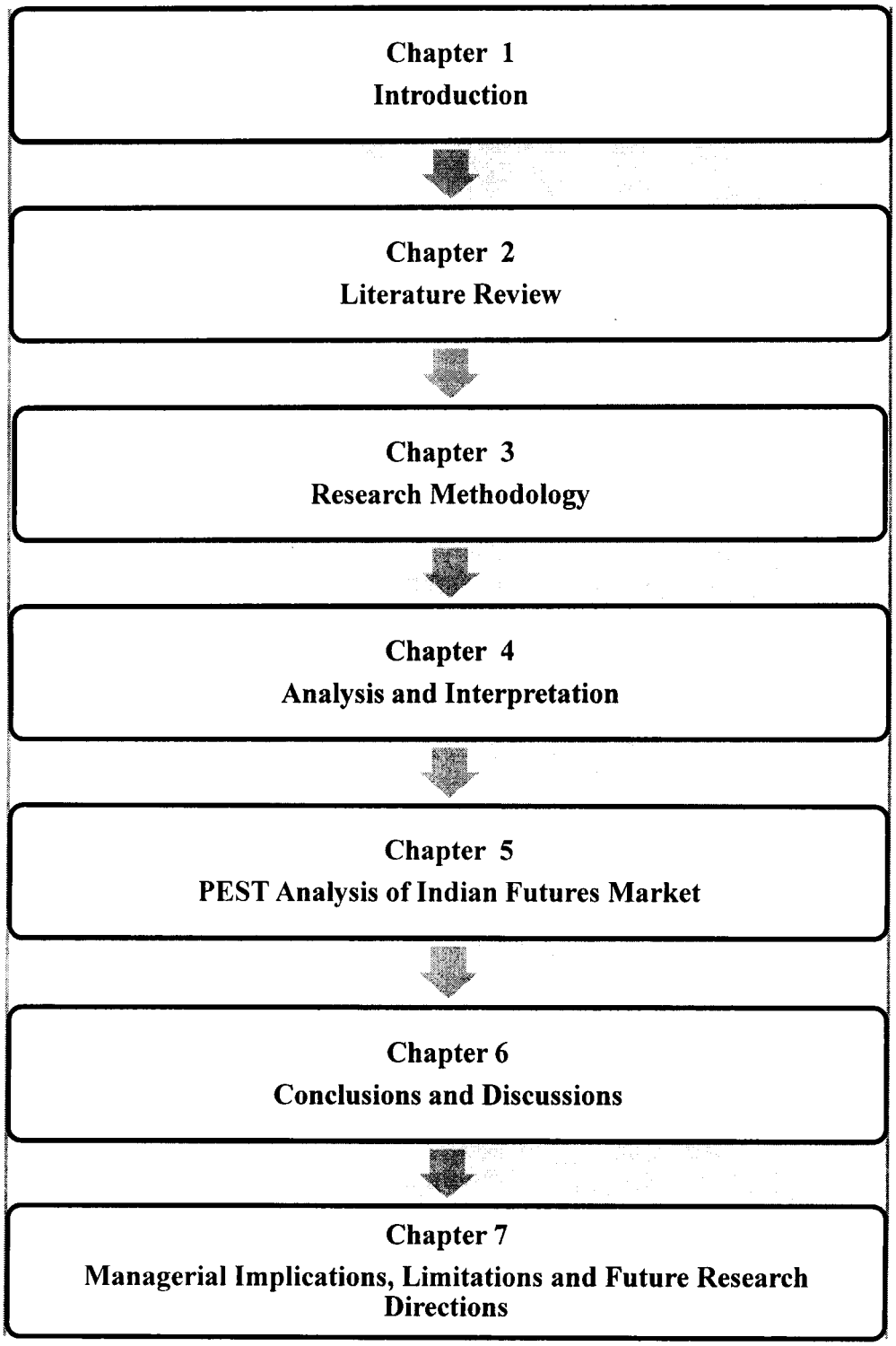
Chapter 4, hypotheses considered for the study has been tested with the help of different statistical tools and the results obtained from analysis have been discussed. This chapter also tries to test the retail investors' trading aptitude.

Chapter 5, shows the Indian Futures Market opportunities and challenges with the help of PEST (Political, Economic, Social and Technological factors) analysis.

Chapter 6, the conclusions and discussions are drawn based on the findings of the present research.

In the last chapter, i.e. chapter 7, the managerial implications of the research have been outlined. It is also followed by limitations and directions for further research.

Figure 1.8: Chapter-wise Plan of the Thesis



CHAPTER 2

REVIEW OF LITERATURE

Chapter Overview

The main focus of this chapter is on the behavioral aspect of investors. This chapter presents a detailed review on the type of investors and their behavior, attitude of investors and investors' reaction to information. The study seeks to explore investors' psychology in financial decision making and the risk taking attitude of investors in investment matters. This also presents a detailed review of how demographic variables of investors influence their investment decisions making.

This chapter also highlights a brief background of futures market and its impact on other markets. It also reviews how volatility, market efficiency and information flow in the stock market are influenced with the introduction of futures.

Subsequently, the gap in literature has been identified which has provided direction and motivation for the present research.

The researcher has gathered the necessary literature for the present study from Management Development Institute (MDI), Gurgaon; FMS Delhi; Indian Institute of Technology, Delhi and Maulana Azad Library, Aligarh Muslim University, Aligarh. Various international journals published by Emerald, Science Direct, Springer, Interscience, etc. have been consulted. A substantial part of the data was also sourced from seminar library of the Department of Business Administration, AMU, Aligarh.

2.1 Investment Avenues and Objectives

Earlier investing was a higher class activity, confined only to the prosperous and business class people. But gradually, people from other classes started participating in it, and no doubt, today, it is a household word. It is popular with people from all walks of life now (Jaffar & Namasivayam, 2006).

People indulge in investment with the purpose of profiting and saving money for future. Its outcome is expected to match with the short-term and long-term financial needs of an individual and/or his/her family. There are various investment avenues like diamonds, gold, silver, real estate, government securities, bank fixed deposits, mortgage loans, debentures/bonds, unsecured loans, preference shares, equity shares, etc. There can be different motives for making investments, depending on the need and circumstances of the individual. Young investors aged (26-35) find investing in mutual funds comfortable, while middle-aged investors (36-45) find debentures/bonds as a more comfortable option (Mittal & Vyas, 2007).

The various motives for investing are capital appreciation, income at specific time intervals, liquidity when required, safety and security of life, hedging against inflation and tax implications. Out of these, some are short-term and some are long-term. Investors are specifically differentiated on various parameters, and depending on the various attributes. Their investment decisions are influenced by various factors like risk taking capability, time frame, knowledge and information, taxable income, safety, availability of funds, cash reversibility and required return (Shrotriya, 2007).

The essential quality of an investment is that it involves 'waiting' for a reward. Investment is the allocation of monetary resources to assets that are expected to yield some gain or positive return over a given period of time. These assets range from safe investments to risky investments. These forms of investments are also called as 'Financial Instruments'. Investment is a commitment of a person's funds to derive future income in the form of interest, dividend, rent, premium, pension benefits or the appreciation of the value of their principal capital. The purpose or interest of person can be different for investment. One can invest by keeping the same objectives in mind such as extra income, appreciation of capital, safety, liquidity, hedge against inflation, tax planning, future plans, etc. All investments are risky; it means risk is always attached to every investment, but the purpose or interest of person can be different in investment (Suryavanshi, 2011). Index futures are in a way, a magical instrument which helps not only in risk

management, but also in returns forecasting, portfolio optimization and asset allocation (Jose, 2007).

Thus, it may be inferred that there can be different motives for making investments, depending on the need and circumstances of the individuals. The various objectives for investing may be capital appreciation, regular income, liquidity, hedging against inflation and tax implications, etc. While some of the investments are safe but some are quite risky.

2.2 Types of Investors and their Behavior

Bielard, Biehl and Kaiser Five-way Model (1986) - is an investor model, developed by noted economists and investment/fund managers Bielard, Biehl and Kaiser, in which investors are classified into five categories:

Individualists – They are confident and careful. They generally do not go to a consultant to manage their investments but do it by themselves.

Adventurers – Adventurers generally go for only big bets. They have the resources to do so and are willing to take risks. The investment made by this type of investors are generally focused and not diversified.

Celebrities – Celebrities are those that are swayed too much by the trend and do not have any expertise or opinion about investments. However, not having the expertise and the confidence required to manage the portfolio on their own, they approach investment managers frequently.

Guardians – Guardians are both anxious and careful. Lacking confidence in themselves, they approach investment counsels. They generally emphasize on safety of the capital while making the investments and a significant proportion of their investments is generally devoted to government securities and guaranteed return investments.

Straight arrows – These are halfway between complete confidence and anxiety, and extreme carefulness and impetuousness.

Various researchers and critics have classified investors in different ways. Barnwell (1987) classified investors as either 'passive' or 'active'. Passive investors are characterized as individuals who have become wealthy passively- by inheriting, by a professional career, or by risking the money of others rather than their own money. In addition, certain classes of occupation are more likely to contain passive investors. For example, doctors, lawyers, teachers, and other professionals or people working in companies behave so. They are more careful with their money, having a greater need for financial security. They are more risk conscious and their low propensity to risk may keep them out of potentially lucrative opportunities. Active investors are those who have achieved significant wealth, or earned well, during their own lifetime. They are more likely to take risks in investing because they already have the experience of taking risks in their past wealth creation process.

Myers (1999) classified investors as either: Cautious, Emotional, Technical, Busy, Casual or Informed. He assumes that individuals will treat different aspects of their life in the same way. For example, if people are cautious by nature, they will also be cautious while investing their money. What changes their investment behavior, is not only how they personally view that risk but also how they view money itself- its gain or loss? This stems from work in behavioral finance which shows that investors perceive gains and losses asymmetrically; which simply means that it hurts to lose a rupee far more than gaining a rupee gives pleasure. Additionally, their behavior is modified by personal bias as well as crowd pressure.

Barber & Odean (2000) found that the average US investor has an annual portfolio turnover of 75 percent and that the average net return to investors who trade frequently is 7.1 percent lower than the return to investors who trade infrequently, providing a strong case that excessive trading harms investment performance.

Grinblatt & Keloharju (2000) found while studying the Finnish market that domestic investors tend to be contrarians, whereas foreign investors pursue momentum strategies in the stock market. Furthermore, foreign investors

outperform domestic investors as a result of a different degree of sophistication across investor types.

Malmendier & Shantikumar (2003) found that large investors adjust their reaction to hold and buy recommendations downward, whereas small investors take recommendations seriously. Potential reactions for their trading behavior are: (1) higher costs of information; and (2) naivety about analysts' distortions. Small investors may be simplistic about distortions, and trust analysts word by word, which may prove impractical.

Wood (2004) studied attitudes and trading behavior of stock market investors by conducting a study among 90 individual investors and identified four main segments of individual investors as: risk-intolerant traders, confident traders, less risk-averse young traders and conservative long term investors. His group segmentation analysis shows that each segment purchased different types of stocks and had different levels of trading behavior.

Hong *et al.* (2004) propose that stock-market participation is influenced by social interaction. In their model, any given "social" investor finds the stock market more attractive when more of his/her peers participate. This theory using data from the Health and Retirement Study (HRS) administered by the Institute for Social Research at the University of Michigan in 1992 and sample size 7500. The study finds that social households- those who interact with their neighbors, or attend social or religious gatherings - are substantially more likely to invest in the stock market than non-social households, controlling for wealth, race, education, and risk tolerance. Moreover, consistent with a peer-effects story, the impact of sociability is stronger in states where stock-market participation rates are higher.

Barber *et al.* (2006), documented that individual investor trading results in systemic and more importantly, economically large losses. The data acquired the complete transaction history of all traders on the TSE (Taiwan Stock Exchange) from January 1, 1995 through December 31, 1999. Using a complete trading history of all investors in Taiwan, they found that the aggregate portfolio of individual investors suffers an annual performance penalty of 3.8% points. Individual investor losses are equivalent to 2.2% of Taiwan's GDP. Using orders

underlying trade, they record that almost all of individual trading losses can be traced to their aggressive orders; passive order placed by individuals are profitable at short horizons and suffer modest losses at longer horizons. In contrast institutions enjoy an annual performance boost of 1.5% points. Both the aggressive and passive trades of institutions are profitable.

Shylajan & Marathe (2006) identified the most important factors affecting the attitudes and trading behavior of stock market investors could be categorized as: Confidence level that an investor has in himself/herself as compared to informal sources, control over his investments, risk taking ability; confidence of the investor as compared to formal sources such as financial analysts and advisors, expectation to perform better than the stock market, short-term investment attitude. These are some of the factors on the basis of which an investor goes ahead and invests in the stock market. Cluster segmentation approach identified two main segments of investors: aggressive investors (more risk taking, more confident, more control over their investments) and non-aggressive (less risk taking, less confident, less control over their investments). So if the number of risk averse people is high, then with slightest decrease in Sensex or Nifty (Index), people will sell their share and resultantly, the Index comes down further and vice-versa.

Cohn-Urbach & Westerholm (2006) attempted to determine whether the frequency of trading on the part of household and institutional investors had an effect on the returns they achieved. Strong evidence is found that investors with high trading frequency earned substantially lower returns than those investors in the same demographic group who traded less frequently. It was shown that investors with larger portfolios tended to trade more frequently than those with smaller portfolios. Further it was demonstrated that those investors with larger portfolios tended to trade actively for a longer period of time than those who held smaller portfolios. They also found that a similar relation exists for institutional investors. This indicates that institutional investors are prone to some biases which are also apparent in household investors. Trading is, however, not as hazardous for institutional investors as it is for household investors; institutional investors earn superior returns even if they trade more frequently than household investors.

Kumar & Lee (2006) by using a data base of more than 1.85 million retail investors' transaction over 1991 to 1996, showed that these trades are systematically correlated- that is individual buy (or sell) stock in concert. Moreover consistent with noise trader models, they found that systematic retail trading explain return co-movements for stocks with high retail concentration (that is, small-cap, value, lower institutional ownership, and lower-priced stocks), especially if these stocks are also costly to arbitrage. Macroeconomic news and analyst earnings forecast revisions do not explain these results. Collectively, the findings support a role for investor sentiment in the formation of returns.

Mittal & Vyas (2008) classified Indian investors into different personality types and explored the relationship between various demographic factors and the investment personality exhibited by the investors. The Indian investors were classified into four dominant investment personalities- casual, technical, informed and cautious. Casual investors prefer high risk investment, cash equivalent and other low risk investment are preferred by technical and cautious investors. Informed investors like moderate risk- moderate return investments. Efficient market hypothesis does not acknowledge the effect of noise trader's decisions on stock price. The present study has proved that there will be two kinds of investors- rational traders and noise traders. In an uncertain situation, decision making process of noise trader will go through mental biases- self attribution bias, loss aversion bias, confirmation bias and overconfidence bias. As a result the noise traders will believe that some irrelevant information will be more important for price decision and they will trade more.

The study of Ansari & Jana (2009) has proved that some of the rational trader's decision process is also guided by all these biases. So rational traders also will not be able to predict the mental behavior of noise traders and effect of sentiment will be at Indian stock Market. The study shows that rational traders use both fundamental analysis and technical analysis as stock selection tools, which does not support the view of finance theorist.

Thus, it may be said that different researchers and critics have classified investors in different ways on the basis of attitudes and trading behavior. Some observers found them to be individualists, adventurers, celebrities, guardians and straight

arrows; others classified investors as passive or active. A group of critics categorize them as cautious, emotional, technical, busy, casual or informed; whereas yet another divided them in risk-intolerant traders, confident traders, less risk-averse young traders and conservative long term investors.

2.3 Attitude of Retail Investors

Miller & Ross (1975) studied that self-attribution bias is often used to explain the overconfidence in individuals. It is a tendency among individuals to attribute successes or good outcomes to their abilities, while putting the blame for failures or unfavorable outcomes on circumstances beyond their control or plain bad luck.

Kahneman & Riepe (1998) found that investors who invest substantial amounts in a share usually take its purchase price as the reference point. They take the decisions to continue with a particular stock, based upon the difference between the current price and purchase price. Their reaction to changes in the price is thus relative to the initial purchase price. If the difference is high and positive, they contemplate selling it. But if the difference is small or negative, they continue to hold it in their portfolio.

Pavabutr (2002) found a common and most documented behavior bias in his empirical studies as overreaction. Investors overreact because they put more weight on the recent news, as compared to past data. People tend to be optimistic when the market goes up and get pessimistic when it comes down. Investors may overreact because complete and accurate information is never available. Even if it is assumed that such a set of information is made available to the public, their ability to process information is limited.

Wood & Zaichkowsky (2004) mention that individuals usually attribute their success to their personal abilities, and their failure to bad luck or the actions of others, which is referred to as the 'self attribution bias'. Bhandari & Deaves (2006) found that if the stocks picked up do well, the investors take it as confirmation of their investing ability, but if the stock price falls, they cite the general condition of the economy or market as the reason for decline.

Mittal & Vyas (2009) revealed that Indian investors are prone to behavioral biases during their investment decision making process. Income was found to be a significant factor impacting the overconfidence level, tendency to overreact and loss/regret avoidance and they generally increase with increasing income. However, income was found to have no significant effect on self-attribution bias, framing effect and tendency to use purchase price as the reference point.

Thus, it may be inferred that investors reflect their attitude in their investment behavior. Self-attribution bias, over-confidence, over-reaction, etc. are some of the major factors with most investors, which makes them, act irrationally. Most of the investors' rely upon their luck or fate instead of reason is other commonly observed attitude.

2.4 Investors' Reaction to Information

The last pillar of Modern Theory of Finance is the Efficient Market Theory developed by Fama (1970). He defined 'efficient market' as a market where the current price of a security reflects all available information fully. Shefrin & Statman (1993) suggested that the design of financial products may be guided by the mental accounting principles. They described how brokers promote covered calls by framing the cash flow of a covered call into three mental accounts or "three sources of profit" – the call premium, the dividend, and the capital gain on the stock. By segregating gains, brokers can make covered calls more attractive to their clients.

Dutta (2001) undertook a study to understand the degree to which the Indian Individual Secondary Market Investors (IISMI) react to good and bad news in the stock market. It was found that the IISMIs are less reactive to bad news as they invest for longer periods. They also pledge a high confidence on their own investment decision rather than market guided decisions. Being less in number, their portfolio revision does not make a distinct mark on the market. However, if the decision making authorities take a positive look at these non-reactive IISMIs, to bad news in the market, it can be used to make corrective measures in the face of falling market indices by changing the market information asymmetry in favour of the individual investors.

Iyer & Bhaskar (2002) concluded their study in three main findings such as,

1. By observing and analyzing the market psychology, people can learn and use it to accomplish trade.

2. Indian markets are directed and controlled by few players who have exclusive information, not easily available to others.

3. Market activity is concentrated in few scripts and psychological factors do play an important role in market.

Busse & Green (2002) found that prices do not update instantaneously to absorb the entire information content of the analyst reports. This is in sharp contrast to the situation in developed markets where reaction time to new information is often measured in minutes if not seconds.

Chakrabarti (2004) examined over 2,000 analyst recommendations to study the predictive value and market impact of stock analyst forecasts in India and find that analysts tend to be optimistic in their predictions, recommending buys considerably more often than sells. Their recommendations do have investment value at least in the near term. Clear buy recommendations appear to be the most valuable. The recommendations also seem to have some impact on stock price.

Menendez-Requejo (2005) on the Spanish stock market stated that there was no possibility of significant abnormal return on the day of the recommendation or the following day, while there was possibility of abnormal return the day before the recommendation. They found that private information or an information available to a few, was supposedly the base of analysts' recommendation allow positive extraordinary returns to be obtained the day before the publication.

Gupta & Aggarwal (2006) conducted a study in Indian stock market, which showed that on an average, analyst's recommendation did not help to earn above normal returns. Specifically the sell recommendations, whether based on fundamental analysis or technical analysis, have not produced any significantly different returns.

Erdogan *et al.* (2009) conducted a study on an emerging stock market namely the Istanbul Stock Exchange. They stated that the stocks quoted in the capital market, which are recommended by analysts do not exhibit superior stock return ability for both short and long-term performance of analysts' recommendations. Their study evaluated several short and long-term trading strategies based on the consensus recommendations and analyst revisions. The results of the study do not suggest the preference of significant abnormal returns either in short-or long-term post-event period, following analyst recommendations.

Kumar *et al.* (2009) indicated that there was a statistically market reaction on event day for buy recommendations announcement, but there was no statistically significant market reaction found for sell recommendations. On an average, recommendations did not help to earn above normal returns. By following analyst recommendation an investor may only be incurring additional burden of transaction costs. The results of the study also supported the behavioral aspect of investors observed by many researchers who say that investors prefer to react strongly to good news (buy recommendations), but dislike reacting to bad news (sell recommendations).

Chandra (2009) examined the factors determining the competence level of individual investors who have invested in various investment vehicles in BSE and NSE. The study revealed that persons invest as per their own judgment once they perceive themselves more knowledgeable about investing. The study finds that level of education and income of individual investors are likely to have a significant impact on their competence followed by factors such as age, investment and gender. Through this study it was shown that investors who feel themselves more competent tend to trade more frequently than those with less perceived competence. This trading behavior is attributed to the competence effect. Thus it can be said that competence effect rules the trading behavior of individual investors.

Gupta & Chandra (2011) evaluated the difference between retail and non-retail mutual fund investors against sources of information as selection criteria construct. They found a significant difference between retail and non-retail mutual fund investors with respect to factors of 'advertisement & shows' and 'published

returns'; while the former is more important for the retail investors, and the latter is more important for the non-retail investors.

Thus, it may be inferred that no information could ever be complete or totally helpful to the investors. For most of the times it is fractional or partial. At times, information is available to a few interested traders only, by which they manipulate the market. Even if it reaches the majority in the form of analysts' recommendation, it does not assist them in gaining above average returns.

2.5 Behavioral Finance and Retail Investors

Strangely, behaving rationally is rare even with the most rational of beings- the humans. People do not always think and act rationally. Although departures from rationality are sometimes random, they are often systematic. For example, Barber & Odean (1999) found a majority of people to overestimate, rather than underestimate their driving ability. In recent years psychologists have identified ways in which people systematically depart from optimal judgment and decision-making. Behavioral finance enriches economic understanding by incorporating these aspects of human nature into financial models.

Israeli psychologists Amos Tversky & Daniel Kahneman are considered the pioneers of behavioral finance. Kahneman won the 2002 Nobel Prize in Economics for his studies on decision-making. Tversky, Kahneman and other authors have researched the influence of psychology in finances, identified the heuristics and cognitive illusions that affect the investment decisions. Until then, though it was perceived that psychology could contribute to finance, no one knew how to study the phenomenon.

Wang (2003) examined behavior and performance of speculators and hedgers and found that trade of speculators is positively correlated with subsequent abnormal returns and hedgers are negatively correlated. However, it does not appear that speculators possess superior forecasting power. Therefore, hedging pressure effects are likely to explain the negative relation between the performance of speculators and hedgers. The positive feedback trading by hedgers together with

their negative performance suggests that hedgers have a destabilizing impact on futures price.

Thus, behavioral finance explains empirical anomalies by introducing the psychology of the investors as a determinant of asset pricing. Two kinds of anomalies - under-reaction and overreaction have been established by an impressive record of empirical work. While under-reaction defines a slow adjustment of prices to corporate events or announcement, overreaction deals with extreme stock price reactions to previous information or past performance. Theoretical models have shown that both phenomena find potential explanations in cognitive biases, that is, investors' irrationality. Kaestner (2006) investigated the current and past earnings' surprises and subsequent market reactions for listed US companies over the period 1983-1999. The results suggest that investors simultaneously exhibit short-term under-reaction to 'earnings announcements' and long-term overreaction to 'past highly unexpected earnings'. A potential explanation for the reported overreaction phenomenon is the representativeness bias. Overreaction and the later reversal are stronger for events which exhibit a long series of similar past earnings surprises.

Baker & Wurger (2006) utilized interim advances in behavioral finance theory to provide sharper tests for the effects of sentiment. In particular, in the many behavioral models of securities markets inspired by De Long *et al.* (1990) investors are of two types: rational arbitrageurs who are sentiment-free and irrational traders prone to exogenous sentiment. They compete in the market, set prices and expected returns. But, arbitrageurs are limited in various ways. These limits come from short horizons or costs and risks of trading and short selling. So, prices are not always at their fundamental values. In such models, mispricing arises out of the combination of two factors: a change in sentiment on the part of the irrational traders, and a limit to arbitrage from the rational ones.

Angle (2007) examined the six common errors (cognitive biases, overconfidence, pain of regret, cognitive dissonance, anchoring, representativeness and myopic risk aversion) of perception and judgment. Each trait has implications for investment decision- making and investor behavior. Usually investors are unwilling to admit their mistakes. This leads to investors avoiding harsh decisions

or delaying them. The result is that investors hold on to losing stocks and sell off potentially good stocks too soon. In the light of behavioral finance, it is found that the rules, the laws governing the market go beyond mere technical analysis of the past result, or micro and macro conditions in market. This is nothing but psychological behavior of individuals or groups which must be accounted for. Behavioral finance does give insights relating to the investor decision-making process. However it's utility as a proactive investment tool is yet to be ascertained. Gains from stock market investment can be reaped if investors keep in mind some of the trade rules. For example, they should look at conflicting views. Because, investors don't have all information, that's why they have to carefully analyze information. They should also have long-term goals.

Abraham (2007) documented Adaptive Markets Hypothesis as an intersectional theory that uses ideas from biological evolution and cognitive neuroscience to better explain the economic interactions and investor behavior. Unlike the precepts of the EMH theory, it seeks to prove that emotion in economic and financial decision-making is not to be suppressed. It is to be viewed as a valuable tool that guide and influence even the most mature and experienced of traders.

Barnea e*t al.* (2010) made an interesting study on twins' marketing behavior. He used data of Swedish Twin Registry (STR[1]) on identical and fraternal twins' complete financial portfolios and found that the cross-sectional variation in investor behavior is decomposed. A genetic factor rather explains about one third of the variance in stock market participation and asset allocation. Family environment has an effect on the behavior of young individuals, but this effect is not long-lasting and disappears as an individual gains experiences. Thus interestingly, frequent contact among twins results in similar investment behavior beyond a genetic factor. Twins who grew up in different environments still display similar investment behavior. Their interpretation of a genetic component of the decision to invest in the stock market is that there are innate differences in factors affecting effective stock market participation costs. They attribute the genetic component of asset allocation - the relative amount invested in equities and the portfolio volatility - to genetic variation in risk preferences.

[1] The STR is the world's largest database of twins, managed and maintained by Karolinska Institute in Stockholm, Sweden.

Thus, it may be concluded that behavioral finance helps in understanding the attitude and behavior of investors. There are theories like Prospect theory, Anchoring, Mental accounting, Confirmation bias, Hindsight bias, Gamble's Fallacy, Herd Behavior, Over Confidence, Availability bias, etc. These theories help in understanding different aspects of investors' behavior, sentiments and their psychology in investment decision making.

2.6 Investors' Psychology in Financial Decisions

Every man or woman is intrinsically a bag of mixed emotions, as behaviorists prove. One lives for them and by them. Markowitz (1952) assumed that investors are about two statistical properties of his portfolio: the mean return and the variance later defined as the concept of risk. Expected return is desirable for investors while variance of return is acceptable only if the returns are greater than expected. A rational investor should maximize the desirable factors and minimize the undesirable ones for a determinate expected return.

Statman (1988) observed that people trade for both cognitive and emotional reasons. They trade in a rational mood, in their personal opinion; because they think they have right information, when in reality they make nothing but indulge in some 'sound and fury'. Sometimes they trade only because they need to do something as trading brings them joy and pride if successful. Trading brings pride when decisions made are profitable, but it brings regrets when they are not. Investors try to avoid the pain of regret by avoiding realization of losses, employing investment advisors as scapegoats and avoiding stocks of companies with low reputations.

Lerner and Keltner (2001) proposed that fear and anger influence judgments in opposite ways: fearful individuals make pessimistic judgments about future events and angry individuals make optimistic judgments instead. Here anger for a change, works positively.

Kumar (2005) examined whether socio-economic and psychological factors which are known to influence lottery purchases, lead to excess investment in the lottery-type stocks. Using monthly portfolio holdings and trading data from a large U.S

brokerage house, he found individual investors invest disproportionately more in stocks with higher idiosyncratic volatility, higher skewness, and lower prices, even though those stocks had lower mean returns. In contrast, institutional investors prefer stocks with higher mean returns, lower idiosyncratic volatility, lower skewness, and higher prices. Individual investor's demand for lottery-type stocks increases when economic conditions are poor and those demands shifts influence the returns and idiosyncratic volatility of lottery-type stocks. Urban poor, young, less educated men invest more in lottery-type features. Under-privileged individuals might view lotteries and stock investments as their only means to escape poverty. But in reality, they are probably digging deeper holes for themselves. Collectively, the evidence indicates that people's attitudes towards gambling are reflected in their stock investment choices and stock returns.

Lo *et al.* (2005) explored several possible links between psychological factors and trading performance of a sample of 80 traders. They came out with the finding that investors who had strong positive or negative emotional reactions to monetary gains and losses performed the worst in the stock market. They suggested that automatic emotional responses like fear and greed often trump more controlled responses like logical reasoning, numerical computation and long-term planning.

Lim (2006) examined whether mental accounting of multiple outcomes influence the way investors sell stocks. He observed that investors are more likely to sell multiple stocks when they realize losses than gains, consistent with the hedonic editing hypothesis (Thaler, 1985) that individuals prefer integrating losses and segregating gains. Also, the way investors combine sales of winners and losers shows that investors select gains and losses to realize together so that the combined outcome is more desirable than segregated outcomes. These results suggest that mental accounting plays a significant role in investors' trading decisions.

Trading and investment is highly affected by a person's psychology. The concept of 'the glass being half full or half empty' applies here perfectly. The study of Kahneman & Amos (1979) observed that the psychology of preferences has demonstrated several intriguing discrepancies between subjective and objective conceptions of decisions. Kahneman and Amos who originally described

'Prospective Theory' in 1979 found that contrary to expected utility theory, people place different weights on gains and losses and on different ranges of probability. They found that individuals are much more distressed by prospective losses than they are happy by equivalent gains. It is concluded that investors typically consider the loss of $1 twice as painful as the pleasure received from a $1 gain. They also found that individuals would respond differently to equivalent situations depending on whether it is presented in the context of losses or gains.

Shiller (1997) observed that investors avoid selling shares that have decreased in value. They keep hanging on to shares as if with the mood of preserving them; whose prices are falling, seeing the price fall even further. The reason suggested for such a behavior of the investors is that they want to avoid the feeling of regret at any cost. This fear looms over them so heavily. By not selling the shares whose prices are falling, investors want to avoid admitting that they have made a mistake and feel regret.

Weber & Cameter (1998) described the disposition effect as: "The tendency to sell assets that have gained value (winners) and keep assets that have lost value (losers)". Weber & Camerer conducted an experiment where the subjects bought and sold shares in six risky assets. The subjects showed a tendency to sell winning shares and keep losing ones, exhibiting the disposition effect.

Deanlebaron (1999) found that if investors need funds, they prefer to sell those shares that have shown an increase in value even if the expected increase may continue in the future as well.

Wakshull (2001) described 'regret' as the frustration over an action that has either been undertaken, and the outcome is less than expected or the failure to act where a positive result would have occurred. It is the state of being victimized by that heavy feeling of despair which envelops him/her strongly for some time. According to Wakshull, regret is often a result of imagination or speculation regarding information that was not available at the time the decision was made.

Lin *et al.* (2006) by using 227 stock investors in Taiwan and using a multiple reference points to regression model to investigate the impact of multiple reference points in investor regret. They found that investors' regrets are most

influenced by indulgence in reflection or retrospection. This could be pondering over the other way, what their outcomes might have been had they not invested, by their expected outcomes and by the best-performing un-chosen or neglected stocks. In addition, they also found that the feeling of regret was largely influenced by a loss or gain relative to each reference point rather than by how much loss or gain.

Graham *et al.* (2004) found that home bias, coupled with the competence effect, play a major role in high trading frequency. They came up with the idea that investors who feel more competent tend to trade more frequently than those who feel less competent. The competence effect also contributes to home bias. They devalue their local or regional deals. When an investor feels more competent about investing in foreign assets, he is more willing to shift a portion of his assets overseas. Their study indicated that investors with higher competence are more likely to invest in international assets.

According to Gonzalez *et al.* (2005) the framing effect is observed when a decision-makers' risk tolerance (as implied by their choices) is dependent on how a set of options is described. Specially, the decisions made by people during gains are quite opposite to the decisions made during losses.

The role of sensation seeking and overconfidence in psychological attributes in the trading tendency of investors has been studied by Grinblatt & Keloharju (2006). They analyzed the role played by sensation seeking and overconfidence in the tendency of investors to trade stocks. They found overconfident investors and investors more prone to sensation seeking indulge in trade more frequently. Thus, for most investors, trading is driven by behavioral attributes. Instead of reason, mood swings play an important role in investment.

Shollapur & Kuchanur (2008) through their survey results revealed that investors hold different perceptions on liquidity, profitability, collateral quality, statutory protection, etc., for various investment avenues. Investors strongly agree on the perceptions in the case of bank deposits (80%) and life insurance policies (65%). On the other hand, 54% disagree in the case of post office savings and certificates, and 58% strongly disagree in the case of corporate securities. The perceptional

gaps analysis presents certain revelations- corporate securities are less preferred; government securities do not provide regular and steady income; investment in insurance policies appreciate in values; bank deposits require more transaction costs, etc. They all agree that there is a need to help investors develop a right perspective of the investment scheme and their attributes.

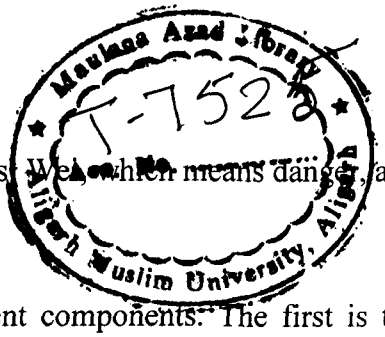
It may be summarized that trading and investment is affected by a person's psychology. Some of the investors invest in very risky assets while some of them hesitate to take risk. Investors place different weights on gains and losses and avoid selling shares that have decreased in value. They keep hanging on to shares as if they would preserve them forever. Sometimes they trade only because they need to do something as trading brings them joy and pride.

2.7 Demographic Variables and Investment Decisions

Every new opportunity presents a risk, investment of any kind is not free of the same. Reley & Chow (1992) contended that "relative risk aversion decreases as one rises above the poverty level and decreases significantly for the very wealthy. It also decreases with age - but only up to a point. After age 65 (retirement), risk aversion increases with age." They also noted that decrease in risk aversion is often parallel with higher degrees of education as well, but speculate that "education, income and wealth are all highly correlated, so the relationship may be a function of wealth rather than education".

Yoo (1994) found that individuals increase their investments in risky assets throughout their working life time, and decrease their risk exposure once they retire. Mittra (1995) discussed factors that were related to individuals risk tolerance which included years until retirement, knowledge sophistication, income and net worth. Malkiel (1996) suggested that an individual's risk tolerance is related to his/her household situation, lifecycle stage and subjective factors.

Western & Brigham (1999) considered risk as the possibilities of an unfavorable event. Under investment perspective, the dominant element of risk is probability of loss or lesser-than-expected gain. The Chinese have the most positive sense of risk. According to Xie & Wang (2003) the Chinese ideogram meaning risk is



Wei-ji, which consisted of two separate characters: Wei, which means danger, and Ji, which means opportunity.

Ross *et al.* (2004) divided risk into two different components. The first is the market risk- the sensitivity of the security to swing in the market (Beta coefficient). The second is the non-market risk, which depends on the fortunes of the company concerned and the industry of which it is a part. The non-market risk of a portfolio is a function of its diversification. A proper investor could certainly benefit by knowing these philosophies related to risk and profit.

Sultana (2010) discussed the characteristics of the Indian individual investors and attempted to discover the relationship between a dependent variable i.e., Risk Tolerance level and independent variables such as age, gender of an individual investor on the basis of the survey. Indian investors are high incomed, well educated, salaried, independent in making investment decisions and conservative investors. From the empirical study it was found that irrespective of gender, most of the investors (41%) are found to have low risk tolerance level and many others (34%) have high risk tolerance level rather than moderate risk tolerance level. It is also found that there is a strong negative correlation between Age and Risk tolerance level of the investor.

It was found that investment decision making is influenced by various factors and one of the most important factors is investors' demographic variables like gender, age, income, education, and experience etc. Study like Hira (1987) examined ten household assets by family demographic variables, and the Chi-square tests indicated that income was a major factor and age, education, employment status, household size, marital status, and several other variables too influenced the ownership of the assets.

Xiao (1995) investigated the determinants of ownership of nine financial assets, and found that income, education, race, and life cycle related variables (household size, marital status, and employment status) were major factors affecting the decisions of investors.

Haliassos & Bertaur (1995) concluded that income is significantly and positively related to the probability of holding risky assets. Individuals with higher net worth

were more likely to participate in the stock market. Shefrin & Statman (1995) also found that age, education, income and marital status have an effect on investors' preference for cash dividends. They also concluded that these factors also influence investors' aversion to realized losses and their confusion regarding good companies and good stock.

Embrey & Fox (1997) found in their study that women are more likely to hold risky assets if expecting an inheritance, employed and holding higher net worth; while men invest in risky assets if they are risk seekers, divorced, older and college educated. Barber & Odean (2001) argued that the relationship between gender and trading activity is due to the greater overconfidence of men. The evidence from their study suggests that single, young male investors tend to trade most frequently. They also found that the turnover of the males exceeded that of females, which they attributed to the greater overconfidence of males.

Dwyer *et al.* (2002) also investigated whether investor's gender is related to risk taking as revealed in mutual fund investment decisions. It was found that women exhibit less risk-taking tendency than men in their most recent, largest and riskiest mutual fund investment decisions. More significantly, it was found that the impact of gender on risk taking is significantly weakened when investor knowledge of financial markets and investments is controlled in a regression equation. This result suggests that the greater level of risk aversion among women which is frequently documented in literature can be substantially, but not completely, explained by knowledge disparities.

Schubert *et al.* (2000) framed choices as either potential gain, or potential loss. They found that women are more reluctant towards risk than men when it comes to gain, while men are more risk averse than women in the frame of loss domain. Women are disinclined to tread on risk threatening path if they see any chance of gain, they would like to play safe as compared to males.

Fatkin (1985) found that males and females are equally successful in taking decisions under conditions of risk. Whereas Stinerock *et al.* (1991) concluded that both males and females are equally competent of dealing with and reacting to information.

Rajarajan (2003) found in his study the existence of strong association between demographic characteristics and the risk bearing capacity of Indian investors. The level of risk bearing capacity increases with increase in income levels. Risk bearing capacity also influenced by the investors' house hold size, occupation of investors, employment status.

Diane & Debra (2003) found that investors with education higher than secondary level hold more risky portfolios. They also saw that the percentage of equity holdings in the portfolio increases with age until retirement and thereafter decreases with age.

Hanna & Lindamood (2005) suggested that wives were much less willing to take risks than husbands. Separate analysis of husbands and wives showed that each group was affected in a similar way by factors such as age and education. Financial planners should try to obtain the risk tolerance levels of both the husband and wife in assessing a married couple household.

Niedenthal *et al.* (2006) showed that culture impacts gender differences in the expression of emotions. Men and women have different social roles in different cultures, which is basically related to the status and power men and women hold. It is also decided by the varying cultural values various societies hold, making men and women to think, feel and decide upon matters in separate ways.

Jaffar & Namasivayan (2006) discussed research findings in investors' behavior with respect to the securities market. As per the age-wise classification, the investors in the age group below 35 years actively participate in the speculative trade whereas the age group above 55 years hesitate to take risk. Technical degree/ diploma holders and professional people are not interested to invest in the security market. Males are more interested than females to invest their money in share market; this may be due to lack of education regarding the securities market among women and also their unwillingness to take risk. Low income group investors show more interest in investing their earnings in the security market. Married persons invest more than unmarried people in the corporate securities which may be due to their responsibility to earn for the family and have a decent

standard of living. The inexperienced retail or individual investor is more likely than the professional to be subject to sentiment.

Greenwood & Nagel (2006) found that younger investors were more likely to buy stocks at the peak of the Internet bubble than old investors.

Mittal & Vyas (2007) through their study provided evidence that the investment choice depends on and is affected by the demographic variables. Through Mann-Whitney U-test, it is found that males prefer equities (risky investment) but females prefer post office deposits (safe investment). Young investors (between 26-35 yrs) find investing in mutual fund comfortable, while middle-aged investors find debentures/bonds as more comfortable option. People with low income like to invest in post office/banks (low-risk), middle income investors like mutual funds (medium risk), while people with high income prefer equities even with high risk. Investors with less education prefer high risk investment like equities and derivatives and the propensity to take risk decreases with increase in education level.

Verma (2008) provided the evidence based on the information obtained through a survey process in India that investment choice depends on and is affected by the demographic variables such as gender, age, income, education, occupation as well as various personality types such as conservative, medium conservative, moderate, medium aggressive and aggressive.

Social and environmental factors affect brain activity and behavior, which are obviously different. At times, it could be difficult for researchers to assess whether the differences are innate and basic. Studies on this topic explore the possibility of social influences on how both sexes perform differently in cognitive and behavioral tests. Fine (2010) and Kaufman (2005) have depicted that stereotypes about men and women's behavior have been shown to affect a person's moves and opinions. Common stereotypes characterize men as aggressive and angry; women as emotionally sensitive and irrational.

Vanjeko (2010) identified a strong association among Indian individual equity investors between their age, income and city of living and their investment related

characteristics. He also found that the knowledge about derivatives among investors was very low.

Going through the above studies it may be concluded that investment decision making is influenced by various factors like gender, age, income, education, experience, etc. It is found that males have more risk taking attitude than females. More educationally qualified investors take more rational decisions as compared to educationally less qualified investors. The risk taking capacity of investors decreases towards the age of retirement. While it is also found that investors who are wealthier, are willing to take more risk as compared to one who are less wealthy.

2.8 Introduction of Futures and it Impact on Market

Derivatives are risk minimizing instruments, by using derivatives the risk of the underlying assets can be minimized to a greater extent (Figlewski, 1984; Tofano & Haushalter, 1996; Hentschel & Kothari, 2000; Mckenzie *et al.*, 2000; Rinalini & Kakati, 2007).

Apart from this it was found that futures-trading is moving towards satisfying the speculative desires of speculators rather than hedging price risk (Sah, 2006). Gupta (1992) pointed out that "the high volume of speculative trading has not helped even an iota towards strengthening the market's capital raising function; rather it had the opposite effect. Traders prefer trading in derivatives for inherent financial leverage and lower transaction costs associated with establishing a derivative position (Black, 1975; John *et al.*, 2003).

Futures market plays an important roles in price discovery of underlying assets, it was found that futures markets have more power in disseminating information and therefore has been found to play the leading role in the matter of price discovery (Back, 1993; Wang & Wang, 2001; Anandbabu, 2003; Chakravarty *et al.*, 2004; Bhatia, 2007; Joseph & Yiuman, 2007; Kuldeep *et al.*, 2008; Debasish & Mishra, 2008; Kurov, 2008; Pathak & Rastogi, 2010; Rajesh & Nikhil, 2010).

Kailash & Sham (2006), Sah & Kumar (2006), Das & Pattanayak (2007) analyzed that spot market leads futures, and the spot market transfers the relevant

information to the futures market. Chandra (2006) examines the price integration between BSE Sensex and CNX Nifty in India. Both the stock markets are integrated which implies that there is a long-run relationship between the prices of both the markets.

After the introduction of futures market, volatility of the underlying assets have changed significantly. In some studies it was found that after the introduction of futures market the volatility of underlying assets have seen increase (Finglewski, 1981; Karpoff, 1987; Martell & Wolf, 1987; Harris, 1989; Antoniou & Holmes, 1995; Peat & McCorry, 1997; Hung *et al.*, 2003; Nagaraj *et al.*, 2004; Rao, 2007; Pati & Kumar, 2007; Jindal & Bodla, 2007).

Whereas some studies showed that introduction of futures have helped in reducing volatility in the cash market (Edwards, 1988; Lee & Ohk, 1992; Gary, 1993; Thenmozhi, 2002; Thiripalraju & Prabhakar, 2002; Pierluigi & Laura, 2002; Faff & Michael, 2003; Raju & Kiran, 2003; Gupta, 2003; Nupur & Saikat, 2004; Nath, 2004; Thenmozhi & Thomas, 2004; Vipul, 2006; Srinivasan, 2009).

Apart from this some of the studies showed that futures trading had a limited or no impact on the level of stock market volatility, but it has had a major impact on the way news influences volatility (Antoniou *et al.*, 1998; Hwang & Stephen, 2000; Ryoo & Graham, 2000; Rahman, 2001; Premalatha, 2003; Joshi & Mukhopadhyay, 2004; Sah & Omkarnath, 2005; Pretimaya & Pradeepta, 2007; Sarangi & Patnaik, 2007).

In case of returns in futures market, different studies have shown different findings. Bruand & Gibson-Asner (1998) found that the listing of index futures generated positive abnormal returns for large stocks and for the index. Mukherjee & Mishra (3004) have investigated that there is a strong contemporaneous and bidirectional relationship between the returns in the spot and futures markets.

Dheeraj *et al.* (2006) indicate that arbitrage profits are more for far-month futures contracts than for near-month futures contracts; for undervalued futures market than for overvalued futures market; for high liquid futures than for less liquid futures; and when new contracts are added than when outstanding contracts are settled.

Mohan *et al.* (2004), Narayan & Omkarnath (2007) analyzed and concluded that introduction of future had increased the efficiency of market by quicker dissemination of information. But change in volatility of the underlying stock market could not be completely attributed to the introduction of futures trading. Sen (2011) investigated the short-run and long-run relationships between Indian stock market and stock indices of major countries in the Asia-Pacific region. The results reveal significant correlation between Sensex and other indices.

Thus, it may be inferred that derivatives are risk minimizing instruments of the underlying assets but futures-trading is moving towards satisfying the speculative desires of speculators rather than hedging price risk. Futures market plays an important role in price discovery of underlying assets. After the introduction of futures trading some of the studies found that the volatility of cash mark decreased while some of them said that it has increased. Somehow, introduction of future has been associated with increasing the efficiency of share market.

2.9 Research Gap

A majority of the studies related to futures, reported in the literature review have been carried out in the context of the developed countries like US, Britain, Australia, etc. However, the researcher has not been able to locate any empirical study in the Indian context. In most of the studies, only institutional and big investors are focused upon and there is general lack of studies on the small and retail investors.

Behavioral finance is a relatively new area of research. Though previous researches have highlighted the influence of investors' demographic profile on different investment avenues but there is still much scope for further research on the same. Previous researchers have mainly dealt with fixed deposits, mutual funds, equities, real state, commodities, etc. However, none of these studies have dealt with futures trading, which indicates a research gap and points towards a need for conducting research in the area of investor demographics with reference to futures trading.

Most of the previous studies related to futures trading have dealt with different dimension of the markets like volatility, price discovery, information flow, impact on stock market, etc. Since, none of these specifically address the effect of

investors' demographics on different dimensions of futures trading; the present study tries to address the same in order to bridge the research gap.

The studies which have been conducted in India are found to be based in places other than North India and specially the NCR[2]. Some of the studies sound outdated in the present context as they were conducted long time back thus creating a time barrier to their applicability and relevance. Since this study aims to research the influence of investors' demographics on futures trading in North India, the present study thus, carries a promise to be an addition and improvement to the corpus of previous studies.

Very few studies have been conducted in regard to investor's perception and investment behavior in equity market but rarely any study has been found related to stock index futures. There is not much emphasis on studies related to retail investors' opportunity and challenges in futures trading in India. There are various issues in need of attention related to futures trading like new product design, margin requirement and trading timing.

Based on the literature review, it is clear that most of the studies have been conducted in regard to investors' perception and behavior in stock trading. Very few studies have been conducted in regard to stock based index futures market. A research gap exists with respect to retail investors' participation, perception, risk return expectation and their confidence level in Indian stock futures markets. To fill in this void, the present study has been undertaken.

Therefore, it may be concluded that various studies conducted so far have focused on some aspects of investor behavior to the neglect of others. Most of the times, there is a difference of perspectives. Some of them were conducted long time back, while most were conducted in countries other than India. It leaves a research gap with respect to retail investors' participation, perception, risk return expectation and their confidence level in Indian stock futures markets. The present study has been undertaken to fill in this void particularly.

[2] NCR India, or the National Capital Region of Delhi is comprising of the National Capital Territory of Delhi and nearby satellite towns of Gurgaon in Haryana and Faridabad, NOIDA, Greater Noida, and Ghaziabad in U.P.

CHAPTER 3

RESEARCH METHODOLOGY

Chapter Overview

This chapter highlights the research objectives of the study, hypotheses, research design, questionnaire design, sampling method, data collection and administration. Finally the limitations of the study are discussed.

Though retail investors are trading in futures markets in small lots but from the data it is found that their participation in Indian derivatives market is around 55%. They are instrumental in maintaining the futures market liquidity and efficiency. At the same time it is also found that retail investors are facing problems like lack of investor education, manipulated information, unavailability of suitable futures products, etc. in futures market. This study looks into these issues in the perspective of retail investor's participation in India's stock based index futures market.

3.1 Introduction

Every research needs a methodology to direct its way towards a cogent and comprehensive goal. Thus, a research methodology is the strategy, plan of action, process, or design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes (Crotty, 1998).

This chapter details out the problem statement, scope of the study, research objectives and work plan of the survey. It also covers the essentials like the applied research design, questionnaire development and its administration along with pattern of data analysis, and formulation of hypothesis.

3.2 Problem Statement

A research problem, in general, refers to some difficulty which a researcher experiences in the context of either a theoretical or practical situation and wants to

obtain a solution for the same (Kothari, 2005). But to encounter such problems is natural in the face of certain serious doubts prevailing about secular developments. One could say it without doubt that Indian derivatives markets are still 'very narrow, shallow and rely more on the mercy of manipulators and speculators' (Sharma, 2006). That's why there's little liberty for the common investors. It could also be pointed out here that Indian markets are directed and controlled by a few players who have 'access to information often unavailable to others' (Iyer & Bhaskar, 2002). One can't deny that the malaise of monopoly still exists in changed forms.

It has taken a long time to realize the direct connection between human behavior and its effect on markets and vice versa. Some of the studies do relate them but scantily. It seems as if the two concepts at hand have been considered to be far-fetched ideas; whereas, in reality they are very much inter-related concepts.

Previous research by Markowitz (1952); Fama (1970); Miller & Ross (1975); Kahneman & Amos (1979); Thaler (1985); Kahneman & Riepe (1998); Barber & Odean (1999); Lerner & Keltner (2001); Pavabutr (2002); Iyer & Bhaskar (2002); Wang (2003); Graham *et al.* (2004); Wood & Zaichkowsky (2004); Menendez-Requejo (2005); Kumar (2005); Lo *et al.* (2005); Bhandari & Deaves (2006); Baker & Wurger (2006); Grinblatt & Keloharju (2006); Abraham (2007); Angle (2007) and Mittal & Vyas (2009) - throw light on different aspects of investment decision making including investors' attitude related to equities, mutual funds, insurance, gold, real-estate etc. However, none of these studies has researched on investors' attitude, emotions and biases in futures market investment causing a research gap in itself and points towards a need for conducting research in the area of investors' attitude towards futures trading.

Studies like Hira (1987); Riley & Chow (1992); Xiao (1995); Haliassos & Bertaur (1995); Shefrin & Statman (1995); Embrey & Fox (1997); Barber & Odean (2001); Dwyer *et al.* (2002); Rajarajan (2003); Diane & Debra (2003); Hanna & Lindamood (2005); Jaffar & Namasivayan (2006); Greenwood & Nagel (2006); Mittal & Vyas (2007); Verma (2008) and Vanjeko (2010) have depicted the influence of investors' demographic profile on different investment avenues like

fixed deposits, mutual funds, equities, real state, commodities etc. However, none of these studies have dealt with futures trading which indicates a research gap and points towards a need for conducting research in the area of investor demographics with reference to futures trading.

Researchers like Black (1975); Finglewski (1981); Stephen Figlewski (1984); Martell & Wolf (1987); Karpoff (1987); Edwards (1988); Lee & Ohk (1992); Back (1993); Antoniou & Holmes (1995); Tofano & Haushalter (1996); Hentschel & Kothari (2000); Rahman (2001); Thenmozhi (2002); Anandbabu (2003); Gupta (2003); Mukherjee & Mishra (3004); Nagaraj *et al.* (2004); Mohan *et al.* (2004); Vipul (2006); Narayan (2006); Rinalini & Kakati (2007); Pretimaya & Pradeepta (2007); Joseph & Yiuman (2007); Kuldeep *et al.*, (2008); Debasish & Mishra (2008); Srinivasan (2009); Rajesh & Nikhil (2010) and Pathak & Rastogi (2010) studies are related to futures trading. But all the studies exhibit the effect of futures trading on different dimension of the markets like volatility, price discovery, information flow, impact on stock market and many more. Since, they do not specifically address the effect of investors' demographics on different dimensions of futures trading, the present study tries to address the same in order to bridge the research gap.

Therefore, it may be concluded that the various studies conducted so far have focused on some aspects of investor behavior to the neglect of others. Most of the times, there is a difference of perspectives. Some of them were conducted long time back, while some were conducted in countries other than India. For the study by Mittal & Vyas (2009), data was collected in 2006 from Indore in Central India, for Shylajan & Marathe (2006), data was collected from Hyderabad in South India, and for Jaffar & Namasivayam (2006), data was collected from Theni in Tamil Nadu. All these studies conducted in India were found to be based in places other than North India. Some of them sound outdated today because of the distance in time. Since this study aims to research the influence of investors' demographics on futures trading in North India, the present study thus, carries a promise to be an addition and improvement to the corpus of previous studies.

Based on the literature review it is clear that most of the studies have been conducted in regard to investors' perception and behavior in stock trading. Few studies have been conducted in regard to stock based index futures (SIF) or single stock futures (SSF) trading. A research gap exists with respect to retail investors' participation, perception, risk return expectation and their confidence level in Indian SSF and SIF markets. To fill this void, the present study has been undertaken. In order to study the above mentioned aspects, the researcher has considered simply the term 'futures' in place of single stock futures (SSF) and stock based index futures (SIF).

3.3 Scope of the Study

The present study has been conducted keeping in view the retail and small trader in Indian stock index futures market to look into the following aspects. This study is confined to single stock futures and stock index futures only. The respondents belonged to New Delhi, NOIDA, Gurgaon, Agra and Aligarh.

- Different aspects of futures (SSF & SIF).
- Retail investors' awareness of futures.
- Problems faced by retail investors in futures trading.
- Opportunities in stock index futures trading.
- Suitable futures product development for the investors.
- Measures to be implemented by SEBI to build the retail investors' confidence in futures trading.

3.4 Research Objectives

The purpose of research is to discover answers to questions through the application of scientific procedures. The main aim of research is to find out truth which is hidden and which has not been discovered as yet (Kothari, 2005). Keeping in view the research gap on different parameters of retail investors' participation in Single Stock Futures (SSF) and Stock based Index Futures (SIF) trading, the following objectives have been framed:

- To study futures market in India.
- To ascertain the awareness level of retail investors in futures trading.

- To study the variation in the behavior of futures' traders with respect to their demographic variables.
- To study the attitude of retail investors' in futures trading.
- To study the opportunities and challenges of futures market in India.
- To come up with suggestions on the basis of findings of the study.

3.5 Research Design

The research design is the step aimed at designing the research study in such a way that the essential data can be gathered and analyzed to arrive at a solution. Research design consists of three important terms –plan, structure and strategy of the research (Beri, 1989). The following are the design considerations for this research in accordance with the guidelines suggested by Sekaran (2003)

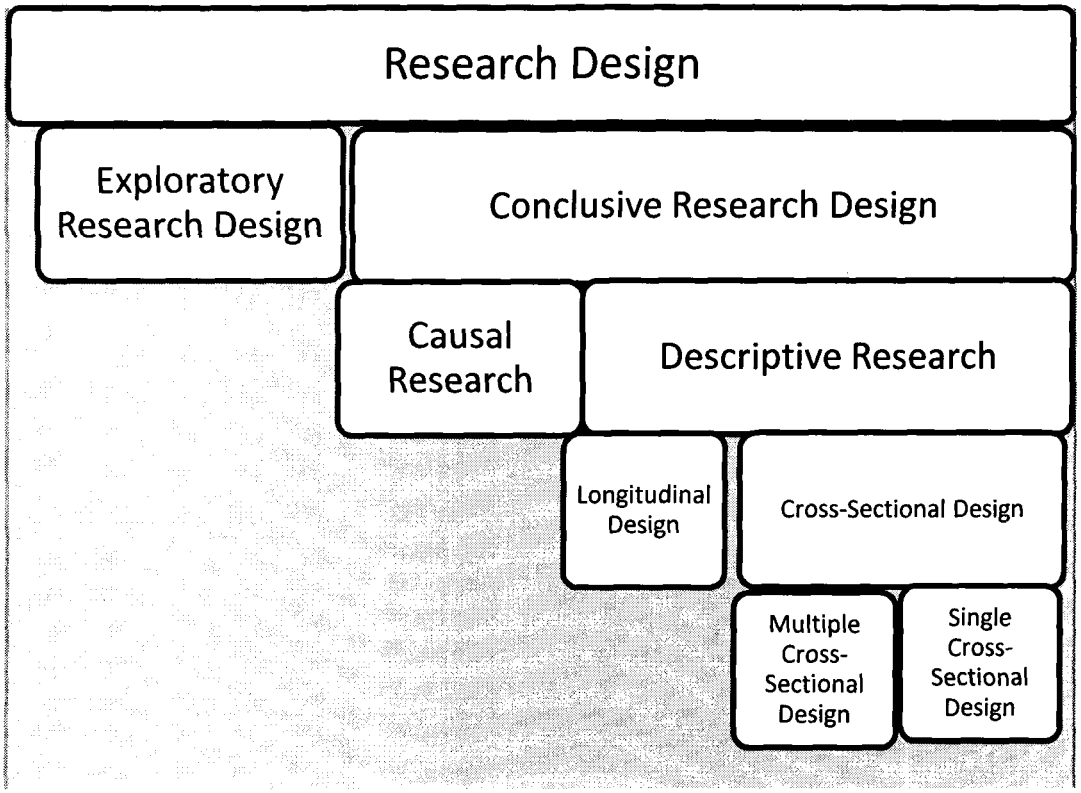
Exploratory Research: Exploratory research is concerned with discovering the general nature of the problem and the variables that relate to it (Tull & Hawkins, 1987). In the case of exploratory research, the focus is on the discovery of ideas. It does not have a formal and rigid design as the researcher may have to change his focus or direction, depending on the availability of new ideas and relationships among variables. An exploratory study is in the nature of a preliminary investigation wherein the researcher himself is not sufficiently knowledgeable and is, therefore, unable to frame detailed research questions (Beri, 1989).

Conclusive Research: The research process is structured and formal, wherein the information needed is clearly defined. A large and representative sample is considered for quantitative data analysis. Generally the findings are used as input into decision making (Malhotra, 2007).

Causal Research: In causal research studies, an attempt is made to specify the nature of the functional relationship between two or more variables in the problem model (Tull & Hawkins, 1987). Causal research is used to obtain evidence of cause-and-effect (causal) relationships. This is to understand the variables acting as the cause and variables with an effect of a phenomenon and to determine the nature of the relationship between the causal variables and the effect to be predicted (Malhotra, 2007).

Descriptive Research: Descriptive research is focused on the accurate description of the variables in the problem model (Tull & Hawkins, 1987). It has a structured research design normally conducted through surveys. It describes the relationship between independent and dependent variable (Malhotra, 2007).

Figure 3.1: Research Design



Source: Adapted from Malhotra (2007)

Cross-sectional Design: A cross-sectional study is concerned with a sample of elements from a given population (Beri, 1989). The cross-sectional study is the most frequently used descriptive design in marketing research. In this design one sample of respondents is drawn from the target population and information is obtained once from this sample (Malhotra, 2007).

Single cross-sectional designs: A cross-sectional design in which one sample of respondents is drawn from the target population and information is obtained from this sample once. These designs are also called sample survey research designs (Malhotra, 2007).

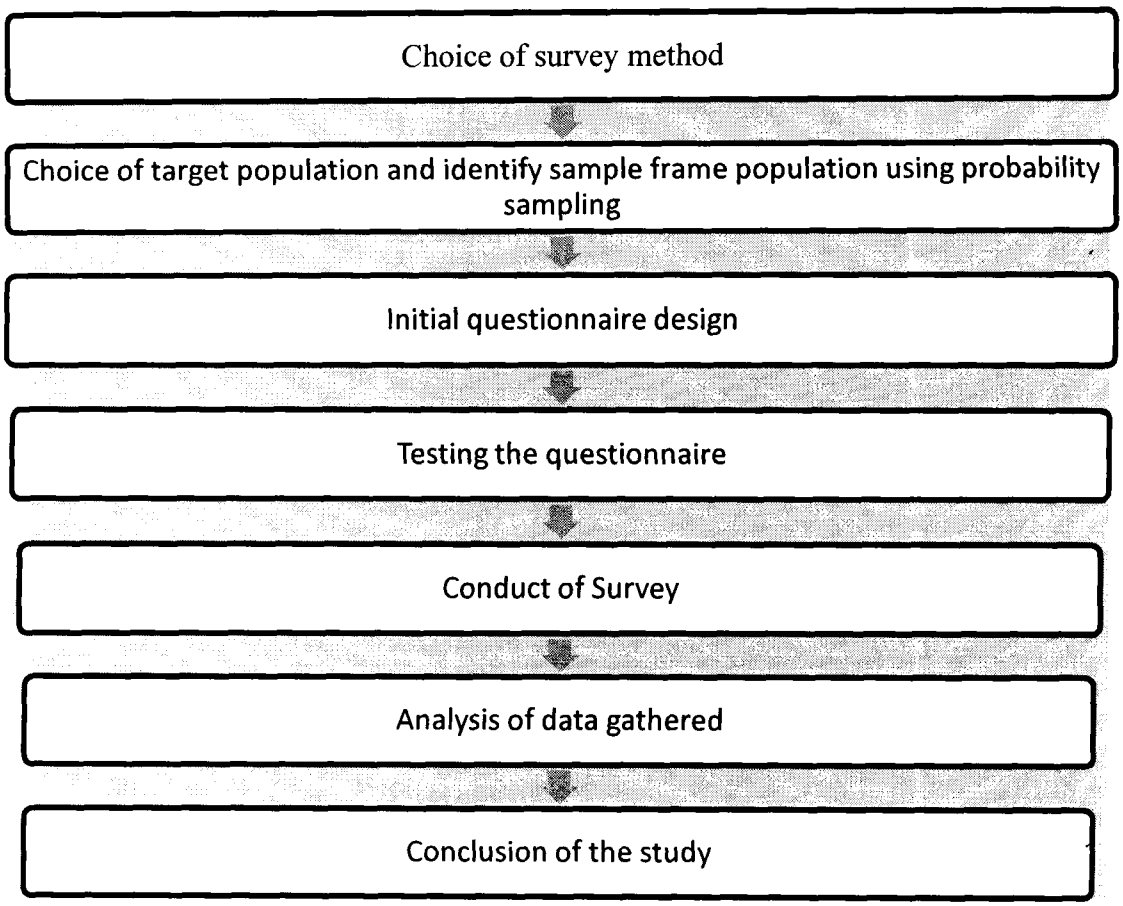
Multiple cross-sectional designs: A cross-sectional design in which there are two or more samples of respondents, and information from each sample is obtained only once. Often, information from different samples is obtained at different times over long intervals (Malhotra, 2007).

Research techniques employed in this research: This is a unique study, conducted in India with no prior research foundation to bank upon. Therefore, this research primarily follows an exploratory research design. However, the readers may also find it to be a mix of both exploratory as well as descriptive approach towards conducting a research study.

3.6 Work plan for the Survey

The present research has been done, following the steps given in figure 3.2.

Figure 3.2: Work Plan for the Survey



Source: Adapted from Malhotra (2007)

3.7 Questionnaire Development and Administration

Development of research instrument involved identification of constructs, method of survey to be employed, questionnaire design, pretesting of questionnaire and administration of final questionnaire.

3.7.1 Selection of Survey Method

The decision to choose a survey method may be based on a number of factors which include sampling, type of population, question form, question content, response rate, costs and duration of data collection (Aaker *et al.*, 2002). Owing to the nature of the study it was decided to personally administer the structured research instrument developed for the study. The language used in the questionnaire was English and no problem was faced in administration as the target population is well versed with it. Otherwise too, English is widely spoken and understood in India. The main benefits of the method adopted are listed below:

- The questions can be answered by tick mark the proper response format and with an interviewer present respondents could seek clarity on any question (Aaker *et al.*, 2003; Boyd *et al.*, 2003).
- The respondents are more motivated to respond as they are not obliged to admit their confusion or ignorance to the interviewer (Hayes, 1998; Boyd *et al.*, 2003).
- A higher response rate can be assured since the questionnaires are collected immediately once they are completed (Malhotra, 2007)
- This method offered highest degree of control over sample selection (Malhotra, 2007).

However, it can be very time consuming if a wide geographic region is involved.

3.7.2 Measurement Scales

As this study aims to measure the effect of demographic variables of retail investors and attitude of retail investors in stock based index futures trading,

multiple-item scale were deemed appropriate as it is frequently used in marketing research to measure attitude (Parasuraman *et al.*, 1991). The use of a multi-item scale would ensure that the overall score, which was a composite of several observed scores, was a reliable reflection of the underlying true scores (Hayes, 1998).

Three types of measurement scales were used in this research: nominal, ordinal and interval. Nominal scales were used for identification purpose because they have no numeric values (Hayes, 1998), for example - respondents' qualification, their occupation. On the other hand, ordinal scales were used to rank age group, and income level. Further, interval scales were used to measure the subjective characteristics of respondents. For example - in this study, respondents were asked about their expectation and perception in relation to investment horizon, risk attitude, and confidence in stock futures trading. This scale was used due to its strength in arranging the object in a specified order as well as being able to measure the distance between the differences in response ratings (Malhotra, 2007).

3.7.3 Question Content and Wording

The questions were designed to be short, simple and comprehensible. Care was taken to avoid ambiguous, estimation based, generalization type or double barreled and presumptuous questions (Boyd *et al.*, 2003).

3.7.4 Response Format

Two types of response formats were chosen: dichotomous close-ended and labeled scale. In order to obtain information pertaining to respondents' demographics a dichotomous close-ended question format was used. In addition, so as to obtain respondent's perception towards stock index futures trading, labeled scale response format was used. Apart from the simplicity in administration, it was easy to code for statistical analysis (Burns & Bush, 2002; Luck & Rubin, 1999). Labeled scale response format is appropriate in marketing research as it allows the respondents to respond to attitudinal questions in varying degrees that describe the

dimensions being studied (Aaker *et al.*, 2002; Boyd *et al.*, 2003). The advantages of this scale are listed below:

- It yields higher reliability coefficients with fewer items than the scales developed using other methods (Hayes, 1998)
- This scale is widely used in marked research and has been extensively tested in both marketing and social science (Garland, 1991)
- It offers a high likelihood of responses that accurately reflect respondent option under study (Burns *et al.*, 2002; Wong, 1999; Zikmund, 2000).
- It helps to increase the spread of variance of responses, which in turn provide stronger measures of association (Aaker *et al.*, 2002; Wong, 1999).

In relation to the number of scale points, there is no clear rule indicating an ideal number. However, many researchers acknowledge that opinions can be captured best with five to seven point scale (Aaker *et al.*, 2002; Malhotra, 2007). Keeping the same in mind, a seven-point Likert scale was used in this research.

3.7.5 Sequence of Questions

The questionnaire began with less complex and less sensitive questions and progressed to opinion-seeking questions. The questionnaire consisted of three parts. The first part consisted of demographic information such as gender, age group, educational qualification, income etc. The second part of the questionnaire inquired respondents about their behavior in stock index futures trading. And the last part of the questionnaire solicited respondent's attitude and perception towards stock based index futures trading in India.

3.7.6 Pilot Study

The preliminary questionnaire was pretested. The aim was to ensure that the questions were eliciting the required responses, identify ambiguous wording or errors before the survey was carried out on a large scale (Zikmund, 2000; Burns *et al.*, 2002; Malhotra, 2007). It should be noted that prior to pre-testing, three marketing professors were asked to review the questions and give their opinions in the quest for content validity. Some overlapping questions were detected and

hence were dropped from the list. After the review process, the questionnaire was ready to be pre-tested in an exploratory survey.

The exploratory survey started off in August 2009 with the selection of a small group of respondents based on convenience sample which is common for pilot tests (Zikmund, 2000; Boyd *et al.*, 2003). In all 50 questionnaires were distributed to retail investors who trade in stock based index futures/ stock futures. Retail investors were asked to complete the questionnaire and also give overall comments about the questionnaire. A total of 42 usable responses were obtained. Based on the feedback, the questionnaire was further revised.

The next stage of pre-testing involved a pilot survey in November 2009 on 88 retail investors. The surveys were personally administered and a total of 73 questionnaires were collected. After screening, 8 of the questionnaires were found to be unusable because of missing values, which resulted in 65 usable samples for analysis. Exploratory factor analysis using VARIMAX rotation with Kaiser Normalization resulted in five factors (Table 3.2). The data was tested for reliability and yielded a Cronbach alpha (Cronbach, 1951) score ranging from 0.59 to 0.83 (Table-3.1).

3.7.7 Administration of Final Questionnaire

The sampling process include several steps: definition of the population, establishment of the sampling frame, specification of the sampling method, determination of the sample size and selection of the sample (Malhotra, 2007).

Step 1: Population: The entire retail investors' population who trade in equity and index futures in the Indian futures Market.

Step 2: Sampling unit: Retail investors having traded at least once in stock/index futures were chosen as the sampling unit. The respondents were contacted from New Delhi, Gurgaon, NOIDA, Agra and Aligarh.

Step 3: Sampling Frame: Due to privacy and security concerns, it is practically not possible to obtain a list of investors who have traded in stock/ index futures in

the sampling region. Thus, the sample frame comprised retail investors who were present at the broking house during the trading hours.

Step 4: Sampling method: The sampling process of research involved selection of a sufficient number of elements from the population, and based on this subset, an attempt has been made to draw inferences regarding the characteristics of the entire population (Hayes, 1998; Zikmund, 2000; Boyd *et al.*, 2003; Levin & Rubin 2006). As far as this research is concerned convenience sampling method appeared to be the most practical.

Step 5: Sample size: Next step involved determining the sample size of the study. The required sample size depends on factors such as the proposed data analysis techniques, financial support and access to sampling frame (Malhotra, 2007). As a general rule of thumb, data from at least 300 cases is deemed comfortable, 500 considered as very good and 1000 as excellent (Comrey & Lee, 1992; Tabachnick *et al.*, 2001; Garson 2007). Thus it was decided to target a total of around 750 respondents. All the participants belonged to New Delhi, NOIDA, Gurgaon, Agra and Aligarh.

Step 6: Final Sample and method of data collection: Over all around, 750 investors were approached out of which only 454 agreed to participate in the study. The survey was conducted during January, 2010- February, 2011. Most of the questionnaires were filled during a personal interview with the respondents while some of the questionnaires were handed over to the brokers with a request to be distributed among their clients. These questionnaires were collected later after they were filled up by their clients. During survey, it was found that 9:30 a.m. to 11:00 a.m. and 2.30 p.m. to 3:30 p.m. are the rush hours and investors do not entertain any kind of interference in those hours. That is why the investors were contacted during 11: 00 a.m. to 2:30 p.m.

Proper care was taken to ensure that respondents understood all the questions asked during the survey and responded to the best of their ability. Out of the 454 questionnaires, 43 were found incomplete and so were discarded. Thus, a total 411 questionnaires were analyzed. This gives an overall response rate of 54.80%., a

response rate of above 20% is considered satisfactory for survey findings (Yu and Cooper, 1983). Malhotra & Grover (1998) have also suggested a response rate of 20% for positive assessment of the surveys. The respondents' profile and the results of the survey are discussed in the next chapter.

3.8 Instrument for Data Collection

The present study has two broader aspects: first one for retail investors' behavior on different dimensions of futures trading (*Investment Horizon*[1], *Risk Attitude*[2], *Personalization of Loss*[3], *Confidence*[4] and *Control*[5]) and the second one for retail investors' aptitude (*Self-Attribution Bias*[6], *Overreaction*, *Purchase Price as Reference Point*[7], etc) towards futures (SSF & SIF) trading. For this purpose a structured questionnaire was used. The questionnaire was divided into three sections A, B and C.

Section-A contains demographic related questions.

Section-B of the questionnaire is based on the study of Shylajan & Marathe (2006). Statements are based on the dimensions of retail investor's behavior related to *Investment Horizon*, *Risk Attitude*, *Personalization of Loss*, *Confidence* and *Control.* The responses are taken on 7-point Likert scale (appendix A). Some extra statements have been incorporated and some were deleted in order to focus upon the futures market.

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[1] Investment Horizon: The total length of time that an investor expects to hold a security or portfolio.

[2] Risk Attitude: Risk taking ability of the investors/traders. Measures of risk attitude assess decision makers' perceptions of risk and/or their preferred levels of risk.

[3] Personalization of Loss: Investors/Traders level of regret in a loss making situation in futures trading

[4] Confidence: Investors/traders level of confidence in futures trading. The confidence level is a measure on the likelihood an investor will reach his/her goal. It is a firm belief in one's powers, abilities, or capabilities.

[5] Control: Investors/traders control on stock based index futures trading. Control is the ability to purposefully direct, or suppress, change.

[6] The tendency of people to believe that they are better than others and attributing successful outcomes to themselves, and unsuccessful outcome to bad luck.

[7] Investors tend to use purchase price as the reference point and take decisions based on it.

Section-C focused on trading attitude of the retail investor and the questionnaire is based upon the study of Mittal & Vyas (2009). This part of the questionnaire contains some statements related to problem faced by the retail investors in futures market, these questions were framed very carefully with the consultation of stock brokers, financial advisors, academicians as well as retail investors of futures market. The responses were taken on nominal scale.

3.9 Assessment, Refinement & Validation of Measurement Scales

Prior to carry out further analysis, the multi-item scales developed for the study have to be evaluated for their reliability, unidimensionality, and validity (Anderson and Gerbing, 1988; Sureshchandar *et al.*, 2002). Before actual evaluation of the scale, it would be proper to understand these concepts from the point of view of present research.

Reliability: The reliability of a scale refers to how consistent or stable the ratings generated by the scale are likely to be (Parasuraman *et al.*, 1991; Malhotra, 2007; Warner, 2008). Internal consistency reliability was used to assess the reliability of the scales. The most commonly used approach to this method is the use of Cronbach alpha (Cronbach, 1951; Warner, 2008). The analysis yields a correlation coefficient that indicates the level of interval consistency. Cronbach's alpha is the average of all possible split-half coefficients resulting from different ways of splitting the scale items (Malhotra, 2007). Cronbach alpha tends to be high if the scale items are highly correlated (Hair *et al.*, 1998; Hau, 2005). However, it is to be noted that unidimensionality is a necessary condition for reliability analysis and construct validation (Anderson & Gerbing, 1991). Hence, in the present study, reliability was assessed only after scale unidimensionality was established. For each question, wherever applicable, Cronbach's coefficient (α) was calculated to test the reliability and internal consistency of the responses. Alpha, with a value more than 0.5, is considered to be adequate for exploratory work (Nunally, 1978). The values of alpha (α) for all the questions were found to be more than 0.5 (Table-3.1). It implies that there exists a high degree of internal consistency in the responses to the questionnaire.

A literature review of the behavioral finance area revealed five main constructs that drive investor behavior: Investment horizon, Confidence, Control, Risk attitude, and Personalization of loss (Wood, 2004; Shylajan & Marathe, 2006). This study also follows the same five dimensions of retail investors' behavior as follows:

Table 3.1: Values of Cronbach Coefficient (alpha, α)

Question. Numbers	Dimensions	No. of Items	Cronbach's Alpha (α)
2, 11, 13, 21	Investment Horizon	4	0.76
3, 5	Risk Attitude	2	0.70
8, 15	Personalization of Loss	2	0.61
1, 4, 6, 7, 9, 12, 18, 19, 20	Confidence	9	0.79
10, 14, 16, 17	Control	4	0.73
Questions from 1 to 21	Part A Questionnaire	21	0.83
All the questions of the questionnaire	Scale value	42	0.77

Unidimensionality: It is defined as the existence of one construct underlying a set of items (Garver & Mentzer, 1999). It is the degree to which a set of items represent one and only one underlying latent construct. The test for unidimensional scales is important before undertaking reliability tests because reliability such as Cronbach alpha does not ensure unidimensionality but instead assumes it exists (Hair *et al.*, 1998; Hau, 2005). More importantly, achieving unidimensional measurement is a crucial undertaking in theory testing and development. Unidimensionality is necessary for construct validity (Rubio, Weger & Tebb, 2001). It is therefore, necessary to ensure that each set of indicators designed to measure a single construct achieves unidimensionality.

Validity: Validity of a measurement scale is the extent to which the scale fully captures all aspects of the construct to be measured (Parasuraman *et al.*, 1991;

Hayes, 1998; Garson, 2002). In a general sense, a measurement scale is considered to be valid if it measures what it is intended to measure. Among several types of validation procedures suggested in the literature, three types are considered as being appropriate to the current research. They are content validity, convergent validity, and discriminant validity.

Content validity: It is also known as face validity, could be defined as the extent to which the content of a measurement scale appears to tap all relevant facets of the construct it is attempting to measure (Parasuraman *et al.*, 1991; Ding & Hershberger, 2002; Malhotra, 2007; Warner, 2008). If refers to the degree that the construct is represented by items that cover the domain of meaning for the construct (Garver *et al.*, 1999; Malhotra, 2007). Content validity is essentially a subjective agreement among concerned professionals (Parasuraman *et al.*, 1991). Content validity of the scale used in the current research is established by their origins from the extant literature. The new items that are used for the first time have been developed through a careful review of the extant literature on the practical manifestations of the respective construct. Extensive discussions were held with brokers, and academicians who reviewed the questionnaire and confirmed that it (with minor change in words of few items) had face validity. After evaluation of the questions, they judged that all of these were appropriate for measuring retail investors' behavior/attitude towards stock based index futures trading in India.

Convergent validity: It is a form of construct validity which refers to the degree to which multiple attempts to measure the same concept are in agreement (Garson 2002, 2007; Warner, 2008). It deals with the question "do the items intended to measure a single latent construct statistically converge together" (Garver *et al.*, 1999). Operationally, convergent validity is assessed by the extent to which the latent construct correlates to items designed to measure that same latent construct.

Discriminant validity: This is assessed by the extent to which the items representing a latent construct discriminate that construct from other items representing other latent constructs (Garver *et al.*, 1999; Warner, 2008). Discriminant validity is also a form of construct validity but it represents the extent to which measures of different concepts are distinct (Garson, 2007;

Malhotra, 2007). Convergent validity and discriminant validity together form the construct validity.

3.9.1 Exploratory Factor Analysis

To assess and refine the measurement scale in terms of unidimensionality, reliability and validity, two main approaches are commonly used in the literature (Sureshchandar *et al.*, 2002). They are Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). In EFA, not a priori restrictions are placed on the pattern of relationships between the observed measures and the latent variables; while in CFA, the researcher must specify in advance several key aspects of the factor model such as the number of factors and patterns of indicator-factor loadings (Ullman, 2006; Hsu, 2007). EFA is more appropriate for scale development and CFA for scale validation (Hau, 2005). Vanderberg & Williams (1997) has presented guidelines for choice between EFA and CFA for conducting the analysis, and for interpreting the results. The current research employed EFA for scale assessment and refinement.

3.9.2 Assessment of Measurement Scale Using EFA

In the present research, the EFA was performed using SPSS 18.0. The current research employed Common Factor Analysis (principal axis factoring) with eigenvalue ≥ 1 as a critical for determining the number of extracted factors. These criteria were selected because the main objective of this step was to identify the latent dimensions represented in the original variables for each construct. Moreover, VARIMAX was chosen, the analysis were undertaken in two hierarchical steps:

First step: EFA with principal axis factoring, eigenvalue ≥ 1 and VARIMAX rotation was applied to each of the constructs under investigation (Conway and Huffcutt, 3003). The main purpose of this step is to see whether the scale for each construct under investigation is unidimensional (i.e. first-order construct) or multidimensional (i.e. second-order construct). For a scale to be empirically unidimensional, the factor analysis must result in only one factor extracted. This is necessary because all latent constructs in the theoretical framework are operationalized as unidimensional constructs. Moreover, items with low factor

loadings (<0.50) were eliminated because they do not converge properly with the latent construct they were designed to measure (Hair *et al.*, 1998; Hau, 2005). Then, reliability analysis (Cronbach Alpha) was applied to each set of indicators (i.e. each scale) to assess and refine the measurement items. Items having low item-to-total correlation coefficient (<0.50) were eliminated. Moreover, as a standard for this preliminary assessment, the scale for each construct must achieve a minimum alpha of 0.70 (Hair *et al.*, 1998; Hau, 2005; Garson, 2007).

Second Step: Joint EFA with the same setting (i.e. principle axis factoring, eigenvalue ≥1 and VARIMAX rotation) was performed on all items of all constructs put together to have a preliminary assessment of unidimensionality, and convergent and discriminant validity (Kline, 1998). Given the result of step-1, where each item loaded highly on the factor representing its underlying construct, this joint EFA allowed all items to correlate with every factor without being constrained to correlate only with its underlying factor (Kline, 1998). Consequently, it allows the investigation of the general correlation pattern of the measurement items (Fabrigar *et al.*, 1999).

Based on this general pattern, various assessments can be made. Firstly, if no item loads highly on more than one factor, it is indicative of unidimensionality, i.e. one item measures only one construct (Anderson *et al.*, 1988). Secondly, all items comprising a scale must load highly on one factor representing the underlying construct. High loadings of all items indicate convergent validity, while loading on only one factor indicates unidimensional construct (i.e. first order construct). Thirdly, no factor consists of two sets of items loading highly on it to indicate discriminant validity (Hair *et al.*, 1998; Hau, 2005).

3.9.3 Results of Exploratory Factor Analysis

Factor analysis results and interpretation are discussed below.

The variables used in the factor analysis were given the notation as:

S1: I expect my Futures contracts to perform better than the other Futures contracts.

S2: I am trading to supplement my income.

S3: I am prepared to take greater risk in order to earn greater return in Stock

Index Futures Trading.

S4: I feel more confident in my own investment opinions over opinions of friends and colleagues.

S5: I feel more comfortable taking risks when my trade contracts are performing well.

S6: I am an experienced Stock Index Futures trader.

S7: I feel more confident in my own investment opinions over opinion of financial analysts and advisors.

S8: My trading losses are felt more than my gains.

S9: I am likely to purchase Futures that have been recommended by friends or colleagues.

S10: I feel more confident in the validity of information that I collect myself.

S11: I am concerned about the fluctuation in the stock market.

S12: I spend considerable effort researching my investments.

S13: If one of my Futures contract drops considerably, I would keep that contract in hopes that it would recover.

S14: I check the performance of my investments very frequently.

S15: When one of my investments performs poorly, I feel unlucky.

S16: After I have spent a long time researching an investment, I am more likely to act on this information (buy or sell).

S17: I feel more confident when I have immediate access to my investments.

S18: Stock market fluctuations as reported by the media do not bother me.

S19: I am very comfortable to understand the Stock Index Futures products, services, opportunities & challenges.

S20: I feel competent enough to trade in the Futures markets.

S21: I trade in Futures with predetermined objectives in my mind.

Principal Component Analysis (PCA) was performed to check whether the items of each construct load on a single construct. Kaiser-Meyer-Olkin (KMO) and Bartlett's Tests were performed to determine if the data are likely to factor well (Malhotra, 2005). KMO measure quantifies the degree of inter correlations among the variables and hence the appropriateness of factor analysis. Another measure is Barlett's test of sphericity which measures the presence of correlations among the

variables. It provides the statistical probability that the correlation matrix has significant correlations among at least some of the variables. Thus, a significant Bartlett's test of sphericity is required.

Factor analysis was run on the data set and the outputs were interpreted. The set of parameter for factor analysis collectively met the necessary threshold of sampling adequacy with an MSA value of .732 in table-3.2

Table-3.2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		**.732**
Bartlett's Test of Sphericity	Approx. Chi-Square	7746.748
	Df	210
	Sig.	.000

Table-3.3 shows the results of rotated component matrix, it is found that all the variables were grouped in five different factors. Only those variables have been retained under the factors which has factor loading (+,-) greater than 0.4 (Malhotra, 2005).

Factor-1: Variables under factor-1, that have significant (>.4) factor loading are retained. These significant factors are S2 (-.908), S11 (.680), S13 (.753) and S21 (.827). S2 is negatively correlated in this factor which shows that the investor is less likely to agree with the statement. This factor is named as *investment horizon* because all factors are related to investment horizon.

Factor-2: Variables under factor-2, that have significant (>.4) factor loading are S3 (.744) and S5 (.740). This factor is named as *risk attitude* because both the factors are related to risk.

Factor-3: Variables under factor-3, which have significant (>.4) factor loading are S8 (-.659) and S15 (-.821). Both the statements show negative values, which indicate that the investors are less likely to agree with these statements. This factor is named as *personalization of loss* because all factors are related to investment horizon.

Table 3.3: Results of factor Analysis

Items	Factor loadings	Cronba-ch's (α)
Factor 1- Investment Horizon		
• I am trading to supplement my income **(S2).**	.908	**0.76**
• I am concerned about the fluctuation in the stock market **(S11).**	.680	
• If one of my Futures contract dropped considerably, I would keep that contract in hopes that it would recover **(S13).**	.752	
• I trade in Futures with predetermined objectives in my mind **(S21).**	.827	
Factor 2- Risk Attitude		
• I am prepared to take greater risk in order to earn greater return in Stock Index Futures Trading **(S3).**	.744	**0.70**
• I feel more comfortable taking risks when my trade contracts are performing well **(S5).**	.740	
Factor 3 – Personalization of loss		
• My trading losses are felt more than my gains **(S8).**	.659	**0.61**
• When one of my investments performs poorly, I feel unlucky **(S15).**	.821	
Factor 4 – Confidence		
• I expect my Futures contracts to perform better than the other Futures contracts **(S1).**	.770	
• I feel more confident in my own investment opinions over opinions of friends and colleagues **(S4).**	.730	
• I am an experienced Stock Index Futures trader **(S6).**	.621	
• I feel more confident in my own investment opinions over opinion of financial analysts and advisors **(S7).**	.684	**0.79**
• I am likely to purchase Futures that have been recommended by friends or colleagues **(S9).**	.805	
• I spend considerable effort researching my investments **(S12).**	.498	
• Stock market fluctuations as reported by the media do not bother me **(S18).**	.528	
• I am very comfortable to understand the Stock Index Futures products, services, opportunities & challenges **(S19).**	.582	
• I feel competent enough to trade in the Futures markets **(S20).**	.672	
Factor 5- Control		
• I feel more confident in the validity of information that I collect myself **(S10).**	.612	
• I check the performance of my investments very frequently **(S14).**	.631	**0.73**
• After I have spent a long time researching an investment, I am more likely to act on this information (buy or sell) **(S16).**	.874	
• I feel more confident when I have immediate access to my investments **(S17).**	.654	

Factor-4: Variables under factor-4, that have significant (>.4) factor loading are S1 (.770), S4 (.730), S6 (.621), S7 (.684), S9 (.805), S12 (.498), S18 (.528), S19 (.582) and S20 (.672). This factor is named as *confidence* because all factors are related to confidence of the respondent.

Factor-5: Under factor-5, the S10 (.612), S14 (.631), S16 (.874), and S17 (.654) have significant values. This factor is named as *control* because all factors are related to control on investment.

3.10 Formulation of Research Hypotheses

Research hypothesis is a predictive statement, capable of being tested by scientific methods, that relates an independent variable to some dependent variable (Kothari, 2004). The formulation of hypothesis in this study is based on the following important studies.

Riley & Chow (1992), Haliassos & Bertaur (1995), Diane & Debra (2003) found that improvement in earning, education leads to increase of risk taking capacity, age is another element which reinforces the same but upto a certain limit; in most cases it relates to the retirement age. Barber & Odean (2001) that males are more confident than females. Greenwood & Nagel (2006) showed that as the experience of the investors increase their level of confidence increases to their investments. Studies like Hira (1987), Embrey & Fox (1997), Barber & Odean (2001), Dwyer *et al.* (2002), Rajarajan (2003), Diane & Debra (2003), Hanna & Lindamood (2005), Jaffar & Namasivayan (2006), Mittal & Vyas (2007), Verma (2008) and Vanjeko (2010) found that demographic variables like, gender, education, income, age, occupation and experience of investors have a significant influence on different dimensions of investment or trading behavior. Based on the above mentioned studies the hypotheses of the present study have been divided into two sections. It may be noted that only Null hypotheses are being mentioned to save space.

Section A: In this section following six sets of hypotheses have been formulated. In each set there are five hypotheses and altogether, there are thirty hypotheses. The first set of hypotheses (H_{01} to H_{05}) shows the influence of gender, second set

of hypotheses (H_{06} to H_{010}) shows the effect of education, third set of hypotheses (H_{011} to H_{015}) shows the effect of income, fourth set (H_{016} to H_{020}) shows the effect of age, whereas the fifth set of hypotheses (H_{021} to H_{025}) shows the effect of occupation and lastly the sixth set of hypotheses (H_{026} to H_{030}) shows the effect of experience on five different dimensions (*Investment Horizon*, *Risk Attitude*, *personalization of Loss*, *Confidence* and *Control*) of retail investors behavior in futures trading in India. The various dimensions of the study are identified after factor analysis of the data which is based on the study of Shylajan and Marathe (2006).

3.10.1 Hypotheses based on dimensions of retail investors' futures trading behavior with respect to gender

H_{01} There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to gender.

H_{02} There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to gender.

H_{03} There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to gender.

H_{04} There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to gender.

H_{05} There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to gender.

3.10.2 Hypotheses based on dimensions of retail investors' futures trading behavior with respect to educational qualification

H_{06} There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to educational qualification.

H_{07} There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to educational qualification.

H_{08} There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to educational qualification.

H_{09} There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to educational qualification.

H_{010} There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to educational qualification.

3.10.3 Hypotheses based on dimensions of retail investors' futures trading behavior with respect to income

H_{011} There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to income.

H_{012} There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to income.

H_{013} There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to income.

H_{014} There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to income.

H_{015} There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to income.

3.10.4 Hypotheses based on dimensions of retail investors' futures trading behavior with respect to age

H_{016} There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to age.

H_{017} There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to age.

H_{018} There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to age.

H_{019} There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to age.

H_{020} There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to age.

3.10.5 Hypotheses based on dimensions of retail investors' futures trading behavior with respect to occupation

H_{021} There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to occupation.

H_{022} There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to occupation.

H_{023} There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to occupation.

H_{024} There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to occupation.

H_{025} There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to occupation.

3.10.6 Hypotheses based on dimensions of retail investors' futures trading behavior with respect to experience

H_{026} There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to experience.

H_{027} There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to experience.

H_{028} There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to experience.

H_{029} There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to experience.

H_{030} There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to experience.

Section B: In this section, there are ten hypotheses. Theses hypotheses deal with investors' attitude in futures trading and their demographic influences on it. Most of the following hypotheses are based on the study of Mittal & Vyas (2009).

3.10.7 Hypotheses based on attitude of retail investors' in futures trading

H_{031} There is no significant variation in *self attribution bias* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{032} There is no significant variation in *over-reaction* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{033} There is no significant variation in *purchase price perception* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{034} There is no significant variation in *regret/loss avoidance* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{035} There is no significant variation in *futures trading motives* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{036} There is no significant variation in *margin requirement perception* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{037} There is no significant variation *in the* investors' desire for mini futures based on their demographic variables (gender, education, income, age, occupation and experience).

H_{038} There is no significant variation in *trading hour requirement* of the investors based on their demographic variables (gender, education, income, age, occupation and experience).

H_{039} There is no significant variation in the investors' tendency of trading in futures with options based on their demographic variables (gender, education, income, age, occupation and experience).

H_{040} There is no significant variation in investors' *satisfaction with SEBI* based on their demographic variables (gender, education, income, age, occupation and experience).

3.11 Scheme of Data Analysis

3.11.1 Data Editing and Coding

Using SPSS- 18 data was edited by checking and adjusting for errors, omissions, legibility and consistency in order to ensure completeness, consistency, and reliability of the data. This was achieved by using 'frequency distribution' feature in SPSS-18. Data was coded by assigning character symbols, and edited before it was entered into SPSS-18. Each item in the questionnaire had a unique variable name. A coding sheet was used to maintain information about how each variable was coded. It comprised a list of all variables in the questionnaire, the abbreviated variable names that were used in SPSS and the way in which the responses were coded. In relation to data input into SPSS-18, screening and cleaning of data before furthering the data analysis stage was necessary to make sure that there were no errors at the stage of keying data. By using descriptive statistics in SPSS such as frequency analysis, the data was screened by checking each variable to see if the score was out of range for this category. Thus after taking due care, researcher proceeded to the data analysis stage.

3.11.2 Missing Data and Outliers

Before proceeding with the analysis, data cleaning procedure was performed to see the outcome. Outliers were detected by the help of box plots (also called box-whisker diagrams) in SPSS-18. Moreover, the missing values were replaced with the mean values in the database (Field, 2006).

3.11.3 Statistical tools

The final step was to select the appropriate statistical tools for analyzing the data. It involved steps such as coding the responses, cleaning, screening the data and selecting the appropriate data analysis strategy (Hau, 2005; Malhotra, 2007). For systematic approach, research elements namely the research problem, objectives, characteristics of data and the underlying properties of the statistical techniques need to be understood (Malhotra, 2007). To meet the objectives of the study, analysis has been done in three steps:

Step-1

Descriptive analysis refers to the transformation of raw data into a form that would provide information to describe a set of factors in a situation that will make them easy to understand and interpret (Hau, 2005). This analysis gives a meaning to data through frequency distribution, mean, and standard deviation, which are useful to identify differences among groups.

T-test was used to explore the differences between two groups (Sekaren, 2003). It is parametric test known as the paired samples t-test. For each subject, the difference between a subject's pre-test and post-test scores is calculated. The mean of these differences is calculated (Taylor *et al.*, 2006). In this study t-test is used to compare the mean scores of male and female retail investors and find out whether significant differences existed between them. To analyze the data the SPSS 18 package was used at significance level of 95%.

Analysis of Variance (ANOVA) procedure was applied to test the hypotheses. ANOVA has its strength over other multivariate analysis because it maximizes the differences among group membership of variables as a whole and helps to understand groups' dimensions differences (Hair *et al.*, 1998). The SPSS 18 statistical package was used to analyze the data using ANOVA module.

Post hoc tests are designed for situations in which the researcher has already obtained a significant omnibus F-test with a factor that consists of three or more means and additional exploration of the differences among means is needed to provide specific information on which means are significantly different from each other. Tukey's test was developed in reaction to the Least Significant Difference (LSD) test and studies have shown the procedure accurately maintaining alpha levels at their intended values as long as statistical model assumptions are met (i.e., normality, homogeneity, independence). Tukey's HSD was designed for a situation with equal sample sizes per group, but can be adapted to unequal sample sizes as well (Stevens, 1999). In this research all statistical analyses were tested at 95% significance level of confidence.

Step-II

Chi-square statistics used to test the statistical significance of the observed association in a cross-tabulation. It assists us in determining whether a systemic association exists between the two variables (Malhotra, 2007). As a non-parametric test, Chi-square can be used to determine if categorical data shows dependency or the two classifications are independent. This test is a technique through which it is possible for all researchers to (i) test the goodness of fit; (ii) test the significance of association between two attributes, and (iii) test the homogeneity or the significance of population variance (Kothari, 2005). All statistical analyses were tested at 95% significance level of confidence.

Step-III

PEST analysis is a simple, useful and widely-used tool that helps to understand the "big picture" of **P**olitical, **E**conomic, **S**ocio-Cultural and **T**echnological environment that influence any industry. Such factors are usually beyond the company's control but can often influence the company. These factors always present themselves either as opportunities or threats to an industry. The objective of PEST analysis in this study is to explore the opportunities and challenges with respect to futures trading in India. It spans the present scenario of political, economic, social and technological factors in the Indian futures market and finally draws the conclusions on the basis of above factors.

3.12 Chapter Summary

This chapter elucidated the problem statement, scope of the study, research objectives, research design and the steps involved in questionnaire development and administration. Research hypotheses were also listed. It also explained the pattern of analysis and research techniques employed in the research.

CHAPTER 4

ANALYSIS AND INTERPRETATION

4.1 Chapter Overview

This chapter sets forth to analyse and interpret the findings peculiar to the study at hand. This chapter is divided into sections for a lucid presentation. Section one deals with the demographic profile of the respondents, then proceeds to hypotheses testing by using T-test and ANOVA. It also interprets the results simultaneously. This part shows the variation of demographic variables on the behavior of different dimensions of futures trading. The second section deals with the investors' aptitude in futures trading. This section applies the Chi-square (χ^2) test on the data to analyse the findings and interpret the results.

All the hypotheses were tested at 95% level of confidence. The study is focused on stock futures and stock based index futures. But for convenience, the research uses simply the term '*futures*' in place of stock futures and stock based index futures, and retail investor has been considered simply as '*investor*'.

The purpose of T-test was to explore whether significant differences exist between male and female respondents in terms of the constructs of the study. On the other hand, ANOVA was employed to explore whether there exist significant differences among respondents based on education, income, age, occupation and experience on different dimensions of futures trading. While Chi-square test was applied to explore the differences in respondents' trading aptitude with respect to demographic variables considered in the study.

4.2 Demographic Profile of the Sample

Data about gender, age, educational qualification, occupation, income, and experience in futures trading were calculated for all the respondents through frequency distribution. The results are based on 411 respondents, 330 of them were males whereas 81 were females. According to educational qualification, occupation and experience investors were classified into five categories. While income wise the respondents were classified in four groups (table 4.1).

Table 4.1: Demographic Profiles of the respondents

		Frequency	Percent	Cumulative %
Gender	Male	330	80.3	80.3
	Female	81	19.7	100.0
	Total	**411**	**100.00**	
Age Group	Upto 25 years	65	15.8	15.8
	26 to 35 years	143	34.8	50.6
	36 to 45 years	126	30.7	81.3
	46 to 55 years	45	10.9	92.2
	Above 55 years	32	7.8	100.0
	Total	**411**	**100.00**	
Educational Qualification	Below-graduation	29	7.1	7.1
	Graduates	126	30.7	37.7
	Post Graduates	132	32.1	69.8
	Professionally Qualified	106	25.8	95.6
	Others	18	4.4	100.0
	Total	**411**	**100.00**	
Occupation	Government job holders	181	44.0	44.0
	Business men	89	21.7	65.7
	Private job holders	73	17.8	83.5
	Housewives	30	7.3	90.8
	Others	38	9.2	100.0
	Total	**411**	**100.00**	
Annual Income Bracket (in rupees)	Upto 300000	110	26.8	26.8
	300001 to 600000	141	34.3	61.1
	600001 to 900000	107	26.0	87.1
	Above 900000	53	12.9	100.0
	Total	**411**	**100.00**	
Experience in Futures trading	≤ 2 years	98	23.8	23.8
	>2 to ≤ 4 years	121	29.4	53.3
	>4 to ≤ 6 years	92	22.4	75.7
	>6 to ≤ 8 years	87	21.2	96.8
	>8 years	13	3.2	100.0
	Total	**411**	**100.00**	

4.3 Dimensions of Investment versus Gender

The results and analysis of retail investors' gender and its' influence on different dimensions such as Investment horizon, Risk dimension, Personalization of loss, Confidence and Control are discussed here one by one. Total respondents of the present study were 411, among them 330 were males and 81 were females.

4.3.1 Variation in Investment Horizon with Gender

The table 4.2(a) shows the descriptive statistics of the respondents on the basis of gender, it also shows the mean values obtained by males and females on *investment horizon* as a dimension of retail investor's behavior. The mean value and standard deviation of male is 5.492 and .432 respectively. However mean values of female is 5.157 and standard deviation is .449.

Table-4.2 (a): Descriptive statistics of Investment Horizon and Gender

	N	Mean	Std. Dev.	t-value	Sig.	Remark
Males	330	5.492	.432	6.200	.000*	Significant
Females	81	5.157	.449			
Total	411					

The result of t-test shows that t-value is 6.200 and Sig. value = .000* which is less than α =.05, hence it may be inferred that significant difference exists in the mean value of responses obtained by males and females on *investment horizon* dimension of retail investors' behavior.

Based on the above results, H_{01} which states that there is no significant variation of investment horizon as a dimension of retail investor's behavior in futures trading with respect to gender is not supported.

The significantly higher mean value of males against females indicates that males have a greater concern than females to supplement their regular income or salary. This may be attributed to the fact that in almost all cases, males are the bread earners of the family. Males also show greater concern over market fluctuation than females which is natural as they are responsible for taking care of the existing

and future needs of the family. Any unfavourable movement of the market can be a potential cause of worry for them. Further, it also indicates that as compared to their female counterparts, males trade in futures with predetermined objectives in mind and exhibit greater patience in investment decisions. Despite a growth in the dual-earning families, family issues like housing, education, health, marriage, owning a vehicle, etc. are primarily the responsibilities of the males as compared to their female counterparts. This may possibly explain a higher mean score of males vis-a-vis females on the investment horizon dimension of retail investor's trading in futures.

4.3.2 Variation in Risk Attitude with Gender

The table 4.2(b) shows the descriptive statistics of the respondents on the basis of gender, it also shows the mean values obtained by male and female on *risk attitude* as a dimension of retail investors' behavior. The mean value and standard deviation of male is 5.843 and .723 respectively. However mean values of female is 5.123 and standard deviation is .696. As the mean value of males is greater than the mean values of females, which indicates that males have more risk taking attitude than females in futures trading.

Table-4.2 (b): Descriptive statistics of Risk Attitude and Gender

	N	Mean	Std. Dev.	t-value	Sig.	Remark
Males	330	5.843	.723			
Females	81	5.123	.696	8.090	.000*	Significant
Total	411					

The result of t-test shows that t-value is 8.090 and Sig. value = .000* which is less than α =.05. Hence it may be inferred that significant difference exists in the mean value of responses obtained by males and females on *risk attitude* dimension of retail investors' behavior.

Based on the above results, H_{02} which states that there is no significant variation of risk attitude as a dimension of retail investor's behavior in futures trading with respect to gender is not supported.

The significantly higher mean value of males against females indicates that males take greater risks in order to earn greater future returns, males feel more comfortable taking risk when their investments are performing well. It may be due to the reason that males have to look after their families, and thus to meet the expenses and obligations, they tend to take greater risks.

4.3.3 Variation in Personalization of Loss with Gender

The table 4.2(c) shows the descriptive statistics of the respondents on the basis of gender, it also shows the mean values obtained by male and female on personalization of loss as a dimension of retail investor's behavior. The mean value and standard deviation of males is 4.527 and .772 respectively. However mean values of female is 4.561 and standard deviation is .463. As the mean values show very little difference, it indicates that both male and female exhibits same level of reaction of disappointment and regret during loss making situation.

Table-4.2 (c): Descriptive statistics of Personalization of Loss and Gender

	N	Mean	Std. Dev.	t-value	Sig.	Remark
Males	330	4.527	.772	-.385	.701	Insignificant
Females	81	4.561	.463			
Total	411					

The result of t-test show that t-value is -.385 and Sig. value = .701, which is greater than α =.05, hence it may be inferred that significant difference does not exist in the mean value of responses obtained by males and females on personalization of loss dimension of retail investors behavior.

Based on the above results, H_{03} which states that there is no significant variation of personalization of loss as a dimension of retail investor's behavior in futures trading with respect to gender is supported.

Thus, it is found that significant difference does not exist between males and females with respect to personalization of loss. The mean value of males and females indicate that both males and females react to loss in trading almost in a

similar manner. Both share the same degree of disappointment and despair in loss making situations. The reason of such a response is naturally due to significance of money in every body's life. Both feel the dissipation of hard earned money very strongly irrespective of the gender.

4.3.4 Variation in Confidence with Gender

The table 4.2(d) shows the descriptive statistics of the respondents on the basis of gender. It also shows the mean values obtained by male and female on confidence as a dimension of retail investors' behavior. The mean value and standard deviation of males is 5.664 and .443 respectively. However mean values of female is 4.885 and standard deviation is .394. So, as we find that the mean value of males is greater than the mean values of females, which indicates that males are more confident than females in futures trading.

Table-4.2 (d): Descriptive statistics of Confidence and Gender

	N	Mean	Std. Dev.	t-value	Sig.	Remark
Males	330	5.664	.443	14.452	.000*	Significant
Females	81	4.885	.394			
Total	411					

The result of t-test shows that t-value is 14.452 and Sig. value = .000* which is less than α =.05. Hence it may be inferred that significant difference exists in the mean value of responses obtained on confidence dimension of retail investors' behavior.

Based on the above results, H_{04} which states that there is no significant variation of confidence as a dimension of retail investor's behavior in futures trading with respect to gender is not supported.

Thus, it is found that males exhibit more confidence in futures trading in comparison to females. Males have a more investment related exposure than females, which helps them to concentrate on their trading in a better way. Thus males are more confident of their investment choices and decisions. Often males

do not rely on others' opinions whereas females look forward to the suggestions of relatives, friends and advisors in their decision making.

4.3.5 Variation in Control with Gender

The table 4.2(e) shows the descriptive statistics of the respondent on the basis of gender, it also shows the mean values obtained by male and female on *control* as a dimension of retail investors' behavior. The mean value and standard deviation of male is 5.936 and .464 respectively. However mean values of female is 5.427 and standard deviation is .393. As the mean values of males is greater than the mean values of females, so it can be said that males have more control than females in futures trading.

Table-4.2 (e): Descriptive statistics of Control and Gender

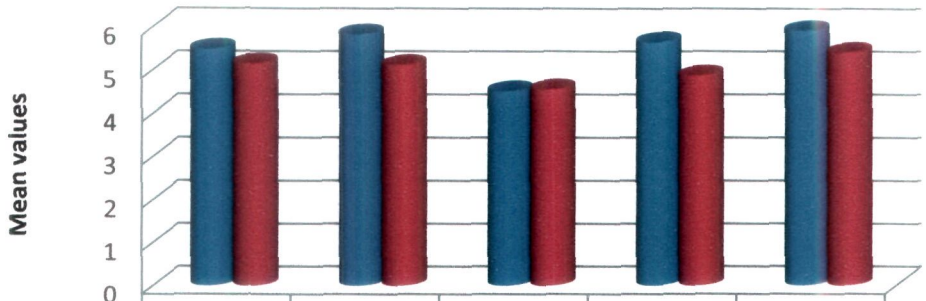
	N	Mean	Std. Dev.	t-value	Sig.	Remark
Males	330	5.936	.464	9.098	.000*	Significant
Females	81	5.427	.393			
Total	411					

The result of t-test shows that t-value is 9.098 and Sig. value = .000* which is less than α =.05, hence it may be inferred that significant difference exists in the mean value of responses obtained by males and females on control dimension of retail investors behavior.

Based on the above results, H_{05} which states that there is no significant variation of control as a dimension of retail investor's behavior in futures trading with respect to gender is not supported.

It may be inferred that males have a general tendency to control things around them which they unleash even in futures trading. Having more confidence, they can control things better than females. They collect and check information regarding their investment exercises more frequently, which adds to their confidence. More often than not, males are in a better position to control things.

Figure- 4.1
A summary of Investment Dimensions with Gender



	IH	RA	PL	CNF	CTL
Males	5.49	5.84	4.52	5.66	5.93
Females	5.15	5.12	4.56	4.88	5.42

IH=Investment Horizon, RA=Risk Attitude, PL=Personalization of Loss, CNF= Confidence, CTL=Control

4.4 Dimensions of Investment versus Education

The results and analysis of retail investors' education and its' influence on different dimensions such as investment horizon, risk dimension, personalization of loss, confidence and control of futures trading have been discussed here one by one. Total respondents of the present study were categorized into five educational groups: below-graduation, graduates, post graduates, professionally qualified, and others. 'Others' category indicates investors who have degrees from some religious or traditional institutions and not falling in the above mentioned qualifications.

4.4.1: Variation in Investment Horizon with Education

Table 4.3 (a) shows analysis of education with investment horizon as a dimension of retail investors' trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of education.

The mean values of investment horizon for different educational groups like below-graduation, graduates, post graduates, professionally qualified, and others are 5.077, 5.166, 5.621, 5.636 and 5.138 respectively. The results of ANOVA test conducted to know the variation in mean values across the educational qualification of the investors shows F-value = 38.169 and Sig. value= .000* which is less than α=.05. Hence there exists a significant difference among the different

educational groups of retail investors on the dimension of investment horizon in futures trading.

Table-4.3 (a): Descriptive statistics of Investment Horizon and Educational Qualification

	N	Mean	Std. Dev.	F	Sig.	Remark
Below-graduation	29	5.077	.438	38.169	.000*	Significant
Graduates	126	5.166	.457			
Post Graduates	132	5.621	.298			
Professionally Qualified	106	5.636	.370			
Others	18	5.138	.494			
Total	411	5.426	.455			

Based on the above results, H_{06} which states that there is no significant variation of investment horizon as a dimension of retail investor's behavior in futures trading with respect to educational qualification is not supported.

Table-4.3 (b): Multiple Comparisons of different Educational groups

Respondents qualification (I)	Respondents qualification(J)	Mean diff (I-J)	Sig.	Remark
Below-graduation	Graduates	-.089	.802	Insignificant
Below-graduation	Post Graduates	-.543	.000*	Significant
Below-graduation	Professionally Qualified	-.559	.000*	Significant
Below-graduation	Others	-.061	.985	Insignificant
Graduates	Post Graduates	-.454	.000*	Significant
Graduates	Professionally Qualified	-.470	.000*	Significant
Graduates	Others	.027	.999	Insignificant
Post Graduates	Professionally Qualified	-.015	.998	Insignificant
Post Graduates	Others	.482	.000*	Significant
Others	Professionally Qualified	-.497	.000*	Significant

Table-4.3 (b) shows that most possible pair groups (I, J) are significant except the groups of below-graduation and graduates, below-graduation and others, graduates and others, and post graduates and professionally qualified. This

indicates that retail investors can be clubbed into two groups, below-graduation, graduates and others are in one group and postgraduates and professionally qualified are in other group.

The mean values of below-graduation, graduates and others (5.077, 5.166, 5.138) when compared with those of post graduates and professionally qualified (5.621, 5.636) investors indicate that educationally more qualified investors are more investment horizon oriented.

It may be inferred that education acts as a source of enlightenment in the real sense. The more educated investors have a broader horizon regarding participation in economic activities whereas less educated ones like below graduation group's shows a kind of restraint in these affairs. The group entitled 'others' refers to those who do not have formal modern education.

4.4.2: Variation in Risk Attitude with Education

The table 4.4(a) shows analysis of education with risk attitude as a dimension of retail investors' trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of education.

Table-4.4 (a): Descriptive statistics of Risk Attitude and Educational Qualification

Qualification	N	Mean	Std. Dev.	F	Sig	Remark
Below-graduation	29	4.844	.483	28.233	.000*	Significant
Graduates	126	5.416	.744			
Post Graduates	132	6.007	.579			
Professionally Qualified	106	5.957	.781			
Others	18	5.333	.664			
Total	411	5.701	.772			

Mean values of risk attitude for different educational groups of below-graduation, graduates, post graduates, professionally qualified, and others are 4.844, 5.416, 6.007, 5.957 and 5.333 respectively. The corresponding F-value is 28.233 and Sig. value= .000* which is less than α=.05, hence there exists a significant difference among the different educational groups on the dimension of risk attitude.

Based on the above results, H_{07} which states that is no significant variation of risk attitude as a dimension of retail investor's behavior in futures trading with respect to educational qualification is not supported.

Table-4.4 (b): Multiple Comparisons of different Educational groups

Respondents qualification (I)	Respondents qualification (J)	Mean diff. (I-J)	Sig.	Remark
Below-graduation	Graduates	-.571	.001*	Significant
Below-graduation	Post Graduates	-.162	.000*	Significant
Below-graduation	Professionally Qualified	-.112	.000*	Significant
Below-graduation	Others	-.488	.126	Insignificant
Graduates	Post Graduates	-.590	.000*	Significant
Graduates	Professionally Qualified	-.540	.000*	Significant
Graduates	Others	.083	.989	Insignificant
Post Graduates	Professionally Qualified	.050	.981	Insignificant
Post Graduates	Others	.674	.001*	Significant
Others	Professionally Qualified	-.624	.004*	Significant

The table-4.4 (b) shows that most of the possible pair groups (I, J) are significant except the groups below-graduation and others (sig=.126), graduates and others (sig=.989) and post graduates and professionally qualified (sig=.981). From the table- 4.4 (a), it is indicated that post graduates (mean=6.007) and professionally qualified (5.957) investors are prone to take more risk and there is no significant variation among the groups, where as the graduates (mean 5.416) and others (mean 5.333) are moderate risk takers and there is no significant variation among the groups. And lastly, below-graduation (mean=4.844) show a lower risk taking attitude. It may be inferred that educationally more qualified investors show more risk taking attitude in futures trading as compared to one who are educationally less qualified.

4.4.3: Variation in Personalization of Loss with Education

Table 4.5 (a) shows analysis of education with personalization of loss, as a dimension of retail investors' trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of education.

Mean values of personalization of loss for different educational groups of below-graduation, graduates, post graduates, professionally qualified, and others are 4.827, 4.912, 4.170, 4.471 and 4.444 respectively. The corresponding F-value is 22.377 and Sig. value= .000* which is less than α=.05, hence there exists a significant difference among the different educational qualification groups on the dimension of personalization of loss.

Table-4.5 (a): Descriptive statistics of Personalization of Loss and Educational Qualification

Qualification	N	Mean	Std. Dev.	F	Sig.	Remark
Below-graduation	29	4.827	.241	22.377	.000*	Significant
Graduates	126	4.912	.812			
Post Graduates	132	4.170	.585			
Professionally Qualified	106	4.471	.624			
Others	18	4.444	.539			
Total	411	4.534	.721			

From above analysis, it may be inferred that H_{08} which states that there is no significant variation of personalization of loss as a dimension of retail investors' behavior in futures trading with respect to educational qualification is not supported.

The mean values of below-graduation and graduates (4.827, 4.912) when compared with those of post graduates and professionally qualified investors (4.170 & 4.471) indicate that educationally more qualified investors regret less as compared to educationally less qualified investors on the dimension of personalization of loss in futures trading.

Table-4.5(b) shows that the pair (I, J) groups "below-graduation & graduates", "below-graduation & professionally qualified", "below-graduation & others", "post graduates & others" and "others & professionally qualified" groups do not exhibit significant variation in their mean values, but the groups "below-graduation& post graduates", "graduates & post graduates", graduates & professionally qualified", "graduates & others" and "post graduates & professionally qualified" show the significant variation in their mean values.

Table-4.5 (b): Multiple Comparisons of different Educational groups

Respondents qualification (I)	Respondents qualification (J)	Mean diff. (I-J)	Sig.	Remark
Below-graduation	Graduates	-.085	.970	Insignificant
Below-graduation	Post Graduates	.657	.000*	Significant
Below-graduation	Professionally Qualified	.355	.075	Insignificant
Below-graduation	Others	.383	.297	Insignificant
Graduates	Post Graduates	.742	.000*	Significant
Graduates	Professionally Qualified	.441	.000*	Significant
Graduates	Others	.468	.039*	Significant
Post Graduates	Professionally Qualified	-.301	.004*	Significant
Post Graduates	Others	-.273	.459	Insignificant
Others	Professionally Qualified	-.027	1.000	Insignificant

It may be inferred that less educated people tend to personalize loss more strongly whereas the highly educated people show fortitude regarding loss and restrain bereavement for long. It may be due to their confidence, their multiple scopes of earnings, their risk taking attitude and support systems. Surprisingly 'others' show a mature behavior, are less prone to loss personalization. It may be due to their stronger faith in destiny, God and their belief that whatever happens, happens for the best.

4.4.4: Variation in Confidence with Education

Table 4.6 (a) shows analysis of education with confidence, as a dimension of retail investors' trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of education.

Table-4.6 (a): Descriptive statistics of Confidence and Educational Qualification

Education	N	Mean	Std. Dev.	F	Sig.	Remark
Below-graduation	29	5.073	.518	16.942	.000*	Significant
Graduates	126	5.392	.509			
Post Graduates	132	5.708	.369			
Professionally Qualified	106	5.600	.566			
Others	18	5.076	.708			
Total	411	5.511	.533			

Mean values of confidence for different educational groups of below-graduation, graduates, post graduates, professionally qualified, and others are 5.073, 5.392, 5.708, 5.600 and 5.076 respectively. The F-value is 16.942 and Sig. value= .000* which is less than α=.05, hence there exists a significant variation among the different educationally qualified groups on the dimension of confidence in futures trading.

Based on the above results, H_{09} which states that there is no significant variation of confidence as a dimension of retail investors' behavior in futures trading with respect to educational qualification is not supported.

Table-4.6 (b): Multiple Comparisons of different Educational groups

Respondents qualification (I)	Respondents qualification (J)	Mean diff. (I-J)	Sig.	Remark
Below-graduation	Graduates	-.319	.016*	Significant
Below-graduation	Post Graduates	-.635	.000*	Significant
Below-graduation	Professionally Qualified	-.526	.000*	Significant
Below-graduation	Others	-.003	1.000	Insignificant
Graduates	Post Graduates	-.315	.000*	Significant
Graduates	Professionally Qualified	-.207	.014*	Significant
Graduates	Others	.316	.086	Insignificant
Post Graduates	Professionally Qualified	.108	.454	Insignificant
Post Graduates	Others	.631	.000*	Significant
Others	Professionally Qualified	-.523	.000*	Significant

The table-4.6 (b) shows that most of the pair (I, J) groups show significant values except the pair groups, below-graduation& others, graduates & others and post graduates & professionally qualified. This indicates that pair groups of below-graduation& others are identical in nature in the case of confidence, the pair groups of graduates & others shows same level of confidence and the pair group of post graduates & professionally qualified have also equal level of confidence in futures market.

The mean values of below-graduation and others (5.073 & 5.076) when compared with those of graduates, postgraduates and professionally qualified (5.392, 5.700 & 5.600) investors indicate that educationally more qualified investors are more confident as compared to educationally less qualified investors. It may be inferred that education enhances the confidence of a person massively. Thus, as respondents' educational acquisition develops, the investors' confidence level boosts up- the post graduates and professionally qualified investors show the highest confidence level in futures trading. It may be due to their exposure to various aspects, better awareness, and their belief that they would be able to take things in their stride. They are exposed to more avenues for getting information, which plays a major role. Whereas educationally less qualified investors may depend on some informal sources for information and suggestions relating to futures trading.

4.4.5: Variation in Control with Education

Table 4.7 (a) shows analysis of education with control, as a dimension of retail investors' trading behavior in futures market and describes the mean values and standard deviations of each group of respondents on the basis of education.

Table-4.7 (a): Descriptive statistics of Control and Educational Qualification

Qualification	N	Mean	Std. Dev.	F	Sig.	Remark
Below-graduation	29	5.379	.493	28.983	.000*	Significant
Graduates	126	5.615	.434			
Post Graduates	132	6.072	.360			
Professionally Qualified	106	5.966	.487			
Others	18	5.611	.571			
Total	411	5.836	.494			

Mean values of control for different educational groups of below-graduation, graduates, post graduates, professionally qualified, and others are 5.379, 5.615, 6.072, 5.966 and 5.611 respectively. The result of ANOVA test conducted to

know the variation in mean value across the educational qualification groups of the respondent shows F=28.983 and Sig. value= .000* which is less than α=.05, hence there exists a significant difference among the educational qualification groups on the dimension of control.

Based on the above results, H_{010} which states that there is no significant variation of control as a dimension of retail investor's behavior in futures trading with educational qualification is not supported.

The table-4.7 (b), shows that most of the pair (I, J) groups show significant values except the pair groups of below-graduation & graduates, below-graduation & others, graduates & others and post graduates & professionally qualified. This indicates that pair groups, below-graduation & graduates has same level of control, below-graduation & others are identical in nature in the case of confidence, the pair groups graduates & others shows same level of control and the pair group post graduates & professionally qualified have also equal level of control in futures market.

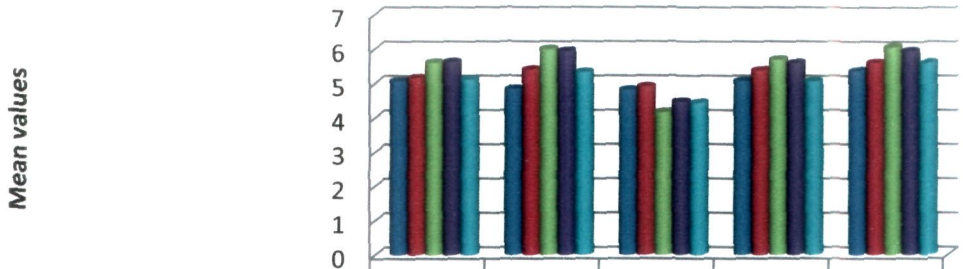
Table-4.7 (b): Multiple Comparisons of different Educational groups

Respondents qualification (I)	Respondents qualification (J)	Mean diff. (I-J)	Sig.	Remark
Below-graduation	Graduates	-.236	.068	Insignificant
Below-graduation	Post Graduates	-.693	.000*	Significant
Below-graduation	Professionally Qualified	-.586	.000*	Significant
Below-graduation	Others	-.231	.397	Insignificant
Graduates	Post Graduates	-.456	.000*	Significant
Graduates	Professionally Qualified	-.350	.000*	Significant
Graduates	Others	.004	1.000	Insignificant
Post Graduates	Professionally Qualified	.106	.337	Insignificant
Post Graduates	Others	.461	.000*	Significant
Others	Professionally Qualified	.354	.014*	Significant

The mean values of below-graduation, graduates and others (5.379, 5.615 & 5.611) when compared with those of postgraduates and professionally qualified (6.072 & 5.966) investors indicate that educationally more qualified investors are

more controlled as compared to educationally less qualified investors when they trade in futures. It may be inferred thus, that education moulds the very personality of the investors specifically when it comes to control over their investment decisions. An educated investor has more awareness and more avenues for getting information before investing in any investment. Educated investors' wide and deep study provides them with pros and cons of that particular investment. Educated investors also show the accessibility of their investments, they check frequently the performance of their investments and they believe in their own collected information. All these reasons may infer that highly qualified investors show more control on their investment than lower qualified investors.

Figure- 4.2
A summary of Investment Dimensions with Educational



	IH	RA	PL	CNF	CTL
Under-graduates (29)	5.07	4.84	4.82	5.07	5.37
Graduates (126)	5.16	5.41	4.91	5.39	5.61
Post graduates (132)	5.62	6	4.17	5.7	6.07
Professionally qualified (106)	5.63	5.95	4.47	5.6	5.96
Others (18)	5.13	5.33	4.44	5.07	5.61

IH=Investment Horizon, RA=Risk Attitude, PL=Personalization of Loss, CNF= Confidence, CTL=Control

4.5 Dimensions of Investment versus Income

The results and analysis of retail investors' income and its influence on different dimensions such as investment horizon, risk attitude, personalization of loss, confidence and control have been discussed here one by one. Total respondents of the present study were categorized into four income groups: Upto 300000 rupees (N=110), 300001 to 600000 rupees (N=141), 600001 to 900000 rupees (N=107) and above 900000 rupees (N=53) (yearly income in Indian rupees).

4.5.1: Variation in Investment Horizon with Income

Table-4.8 (a) shows analysis of income with investment horizon as a dimension of retail investors' trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of their income.

Mean values of investment horizon for different income groups of upto 300000, 300001 to 600000, 600001 to 900000 and above 900000 are 4.945, 5.422, 5.693 and 5.896 respectively. The ANOVA results shows F=151.364 and Sig. value= .000* which is less than α=.05, hence there exists a significant difference among the income groups on the dimension of investment horizon.

Table-4.8 (a): Descriptive statistics of Investment horizon and Income

Income(in INR)	N	Mean	Std. Dev.	F	Sig.	Remark
Upto 300000	110	4.945	.277	151.364	.000*	Significant
300001 to 600000	141	5.422	.339			
600001 to 900000	107	5.693	.347			
Above 900000	53	5.896	.232			
Total	411	5.426	.455			

On the basis of the above results, H_{011} which states that there is no significant variation of investment horizon as a dimension of retail investors' behavior in futures trading with respect to income is not supported.

Table-4.8 (b): Multiple Comparisons of different Income groups

Respondents yearly income (I)	Respondents yearly income (J)	Mean diff (I-J)	Sig.	Remark
Upto 300000	300001 to 600000	-.476	.000*	Significant
Upto 300000	600001 to 900000	-.748	.000*	Significant
Upto 300000	Above 900000	-.950	.000*	Significant
300001 to 600000	600001 to 900000	-.271	.000*	Significant
300001 to 600000	Above 900000	-.474	.000*	Significant
600001 to 900000	Above 900000	-.202	.001*	Significant

Table-4.8 (b) shows that all type of possible pair (I, J) groups have significant variations of their mean values with each other as a dimension with investment horizon.

The mean values of low income groups when compared with those of high income groups indicate that investors who have more income are more investment horizon oriented. It may be inferred that higher income broadens the investment horizon in parallel. It may be due to the reasons that higher income group investors are not much affected by market fluctuations, and their hopes do not die even when their investment fail to deliver in the expected way. Their sufficient incomes give them the confidence to trade in futures with predetermined objectives.

4.5.2: Variation in Risk Attitude with Income

Table-4.9 (a) shows analysis of income with risk attitude as a dimension of retail investor's trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of income.

Table-4.9 (a): Descriptive statistics of Risk Attitude and Income

Income	N	Mean	Std. Dev.	F	Sig.	Remark
Upto 300000	110	5.031	.530	90.653	.000*	Significant
300001 to 600000	141	5.613	.641			
600001 to 900000	107	6.182	.670			
Above 900000	53	6.358	.453			
Total	411	5.701	.772			

The mean values of personalization of loss for different income groups of upto 300000, 300001 to 600000, 600001 to 900000 and above 900000 are 5.031, 5.613, 6.182 and 5.358 respectively. The ANOVA results show F=90.653 and Sig. value= .000* which is less than α=.05, hence there exists a significant difference among the income groups on the dimension of risk attitude.

Based on the above results, H_{012} which states that there is no significant variation of risk attitude as a dimension of retail investor's behavior in futures trading with respect to income is not supported.

Table-4.9 (b): Multiple Comparisons of different Income groups

Respondents yearly income (I)	Respondents yearly income (J)	Mean diff. (I-J)	Sig.	Remark
Upto 300000	300001 to 600000	-.581	.000*	Significant
Upto 300000	600001 to 900000	-1.150	.000*	Significant
Upto 300000	Above 900000	-1.326	.000*	Significant
300001 to 600000	600001 to 900000	-.568	.000*	Significant
300001 to 600000	Above 900000	-.745	.000*	Significant
600001 to 900000	Above 900000	-.176	.300	Insignificant

Table-4.9 (b) shows that all possible pairs (I, J) have significant variations of their mean values with each other as a dimension with risk attitude. But the pair 600001 to 900000 & above 900000 does not show any significant variation in their mean values. This shows that this pair group has same kind of risk taking attitude in futures trading.

The mean values of low income groups when compared with those of high income group investors indicate that investors who have more income have more risk taking attitude in future trading. It may be inferred that investors with high income comfortably take risk with hope to earn more returns and it may also be caused by expected returns of the contracts inspite of risky assets. It is obvious that low income group lives a different life being constrained by limited output. They ponder for every move, taking in consideration their other needs and expenses. They get affected or discouraged by losses easily. Thus, their risk taking capacity is limited.

4.5.3: Variation in Personalization of Loss with Income

Table-4.10 (a) shows analysis of income with personalization of loss as a dimension of retail investor's trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of income.

Mean values of personalization of loss for different income groups of upto 300000, 300001 to 600000, 600001 to 900000 and above 900000 are 4.968, 4.673, 4.233 and 3.867 respectively. The results of ANOVA test shows F=49.000 and Sig. value= .000* which is less than α=.05. Hence there exists a significant difference among the income groups on the dimension of personalization of loss.

Table-4.10 (a): Descriptive statistics of Personalization of Loss and Income

Income	N	Mean	Std. Dev.	F	Sig.	Remark
Upto 300000	110	4.968	.636	49.000	.000*	Significant
300001 to 600000	141	4.673	.702			
600001 to 900000	107	4.233	.563			
Above 900000	53	3.867	.440			
Total	411	4.534	.721			

On the basis of the above results, H_{013} which states that there is no significant variation of personalization of loss as a dimension of retail investor's behavior in futures trading with respect to income is not supported.

The table-4.10 (b) shows that all possible pair (I, J) groups have significant variations of their mean values with each other as a dimension with personalization of loss. This indicates that all the income groups regret differently in loss making situations in futures trading.

Table-4.10 (b): Multiple Comparisons of different Income groups

Respondents yearly income (I)	Respondents yearly income (J)	Mean diff. (I-J)	Sig.	Remark
Upto 300000	300001 to 600000	.294	.001*	Significant
Upto 300000	600001 to 900000	.734	.000*	Significant
Upto 300000	Above 900000	1.100	.000*	Significant
300001 to 600000	600001 to 900000	.440	.000*	Significant
300001 to 600000	Above 900000	.805	.000*	Significant
600001 to 900000	Above 900000	.365	.003*	Significant

The mean values of low income groups when compared with those of high income group investors indicate that investors who have more income regret less in a loss making situation in futures trading.

It may be inferred that low income investors get affected by losses greatly, they mourn for these hard blows for a longer time. It has a discouraging influence on them whereas the high income investors react to losses in a less personal way. They do not get swayed by the loss as they rely upon other ventures for gain and recovery. They look forward to their future investments for a better return, accepting losses as part of trading and reflect a healthier attitude.

4.5.4: Variation in Confidence with Income

Table-4.11 (a) shows analysis of income with confidence as a dimension of retail investors' trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of income.

Mean values of confidence for different income groups of upto 300000, 300001 to 600000, 600001 to 900000 and above 900000 are 4.923, 5.544, 5.857 and 5.943 respectively. The ANOVA results show F=147.597 and Sig. value= .000* which

is less than α=.05. Hence, there exists significant difference among the income groups on the dimension of confidence.

Table-4.11 (a): Descriptive statistics of Confidence and Income

Income	N	Mean	Std. Dev.	F	Sig.	Remark
Upto 300000	110	4.923	.402	147.597	.000*	Significant
300001 to 600000	141	5.544	.318			
600001 to 900000	107	5.857	.385			
Above 900000	53	5.943	.400			
Total	411	5.511	.533			

Based on the above results, H_{014} which states that there is no significant variation of confidence as a dimension of retail investor's behavior in futures trading with respect to income is not supported.

Table-4.11 (b): Multiple Comparisons of different Income groups

Respondents yearly income (I)	Respondents yearly income (J)	Mean diff. (I-J)	Sig.	Remark
Upto 300000	300001 to 600000	-.620	.000*	Significant
Upto 300000	600001 to 900000	-.933	.000*	Significant
Upto 300000	Above 900000	-1.019	.000*	Significant
300001 to 600000	600001 to 900000	-.313	.000*	Significant
300001 to 600000	Above 900000	-.399	.000*	Significant
600001 to 900000	Above 900000	-.085	.513	Insignificant

Table-4.11 (b) shows that most of the possible pair (I, J) groups have significant variations of their mean values with each other as a dimension with confidence. But the group 600001 to 900000 & above 900000 does not exhibit any significant variation in their mean score with respect to investor's confidence.

The mean values of low income groups when compared with those of high income group investors indicate that investors who have more income are more confident in futures trading. It may be inferred that income enhances the confidence of a

person massively. Thus, as respondents' income increases, the investors' confidence level increases. Usually highly income people are more confident, because of their exposure to various aspects, better awareness, and their belief that they would be able to take things in their control. They are exposed to more avenues for getting information, which plays a major role. Whereas lesser income group investors' exhibit less confidence in futures trading, this may be due to their limited resources.

4.5.5: Variation in Control with Income

Table-4.12 (a) shows analysis of income with control as a dimension of retail investor's trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of income.

Table-4.12 (a): Descriptive statistics of Control and Income

Income	N	Mean	Std. Dev.	F	Sig.	Remark
Upto 300000	110	5.401	.376	90.148	.000*	Significant
300001 to 600000	141	5.788	.441			
600001 to 900000	107	6.140	.343			
Above 900000	53	6.249	.308			
Total	411	5.836	.494			

Mean values of control for different income groups of upto 300000, 300001 to 600000, 600001 to 900000 and above 900000 are 5.401, 5.788, 6.140 and 6.249 respectively. The ANOVA results shows F=90.148 and Sig. value= .000* which is less than α=.05. Hence, there exists a significant difference among the income groups on the dimension of control in futures trading.

Based on the above results, H_{015} which states that there is no significant variation of control as a dimension of retail investor's behavior in futures trading with respect to income, is not supported.

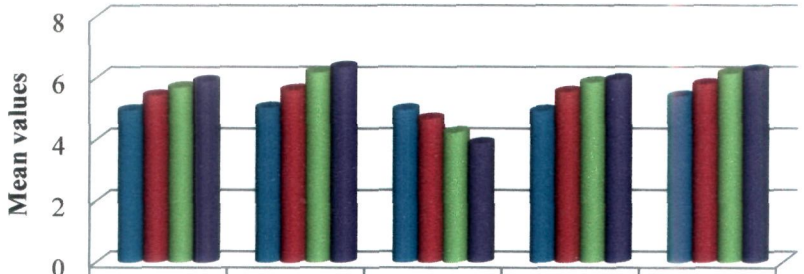
Table-4.12 (b) shows that most of the possible pair (I, J) groups have significant variations of their mean values with each other as a dimension with control. But the group 600001 to 900000 & above 900000 does not exhibit any significant variation in their mean score as a dimension with control.

Table-4.12 (b): Multiple Comparisons of different Income groups

Respondents yearly income (I)	Respondents yearly income (J)	Mean diff. (I-J)	Sig.	Remark
Upto 300000	300001 to 600000	-.386	.000*	Significant
Upto 300000	600001 to 900000	-.738	.000*	Significant
Upto 300000	Above 900000	-.847	.000*	Significant
300001 to 600000	600001 to 900000	-.351	.000*	Significant
300001 to 600000	Above 900000	-.460	.000*	Significant
600001 to 900000	Above 900000	-.108	.333	Insignificant

The mean values of low income groups when compared with those of high income group investors indicate that investors who have more income are more controlled in futures trading. It may be inferred that income shows positive influence on control dimension of investment. High income group investors avail different sources of information, which make them more confident and ultimately they control their investment in more organized way than a low income group investor.

Figure-4.3
A summary of Investment Dimensions with Income



	IHOR	RATD	PLOS	CONF	CONT
Upto 300000	4.9455	5.0318	4.9682	4.9239	5.4018
300001 to 600000	5.422	5.6135	4.6738	5.5443	5.7887
600001 to 900000	5.6939	6.1822	4.2336	5.8575	6.1402
Above 900000	5.8962	6.3585	3.8679	5.9434	6.2491

IHOR=Investment Horizon, RATD=Risk Attitude, PLOS=Personalization of Loss, CONF= Confidence, CONT=Control

4.6 Dimensions of Investment versus Age

The analysis and results of retail investors' age and its impact on different dimensions such as investment horizon, risk attitude, personalization of loss,

confidence and control have been discussed here one by one. Total respondents of the present study were categorized into five age groups: Upto 25 years (N=65), 26 to 35 years (N=143), 36 to 45 years (N=126), 46 to 55 years (N=45) and above 55 years (32).

4.6.1: Variation in Investment Horizon with Age

Table-4.13 (a) shows analysis of age with investment horizon as a dimension of retail investors' trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of age.

Table-4.13 (a): Descriptive statistics of Investment Horizon and Age

Age	N	Mean	Std. Dev.	F	Sig.	Remark
Upto 25 yrs	65	4.957	.248	36.351	.000*	Significant
26 to 35 yrs	143	5.423	.403			
36 to 45 yrs	126	5.625	.397			
46 to 55 yrs	45	5.661	.571			
Above 55 yrs	32	5.281	.208			
Total	411	5.426	.455			

Mean values of investment horizon for different age groups of upto 25years, 26 to 35 years, 36 to 45 years, 46 to 55 years and above 55 years are 4.957, 5.423, 5.625, 5.661 and 5.281 respectively. The results of ANOVA test conducted to know the variation in mean value across the age groups of the respondents shows F=36.351 and Sig. value= .000* which is less than α=.05. Hence, there exists a significant difference among the age groups on the dimension of investment horizon.

Based on the above results, H_{016} which states that there is no significant variation of investment horizon as a dimension of retail investor's behavior in futures trading with respect to age is not supported.

Table-4.13 (b) shows that most of the possible pair (I, J) groups have significant variations with their mean values among each pair group as a dimension with investment horizon. But the pair groups 26 to 35 years & above 55 years, and 36 to 45 years & 46 to 55 years do not show any significant variation in their mean score with the dimension investment horizon in futures trading.

Table-4.13(b): Multiple Comparisons of different Age groups

Respondents age (I)	Respondents age (J)	Mean diff. (I-J)	Sig.	Remark
Upto 25 yrs	26 to 35 yrs	-.465	.000*	Significant
Upto 25 yrs	36 to 45 yrs	-.667	.000*	Significant
Upto 25 yrs	46 to 55 yrs	-.703	.000*	Significant
Upto 25 yrs	Above 55 yrs	-.323	.001*	Significant
26 to 35 yrs	36 to 45 yrs	-.201	.000*	Significant
26 to 35 yrs	46 to 55 yrs	-.238	.004*	Significant
26 to 35 yrs	Above 55 yrs	.141	.348	Insignificant
36 to 45 yrs	46 to 55 yrs	-.036	.984	Insignificant
36 to 45 yrs	Above 55 yrs	.343	.000*	Significant
46 to 55 yrs	Above 55 yrs	.379	.000*	Significant

The mean values of investors who are in the age group of upto 25 years and above 55 years (4.957 & 5.281) when compared with those of 26 to 35 years, 35 to 45 years and 46 to 55 years (5.423, 5.625 and 5.661) indicate that middle age investors (26 to 55 years) are more investment horizon oriented.

It may be inferred that young investors have a narrow investment horizon, and as age grows - the investment horizon widens. It may be due to limited source of money, investment related knowledge, experience, confidence and patience needed by the young investors. They seem to be in hurry to get back the return on their investment so they don't prefer long standing investments. But as they grow-up - their investment horizon increases, with their well informed plans and confidence, strengthened with more money and they also show a better risk-aptitude. But as they proceed towards old-age, their investment horizon level starts declining. They don't go for long term investments as they would like to see the fruit of their labour in their life time. All of these factors related to age seem to influence the investment horizon of the investors.

4.6.2: Variation in Risk Attitude with Age

The table-4.14 (a) shows analysis of age with risk attitude as a dimension of retail investors' trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of age.

Table-4.14 (a): Descriptive statistics of Risk Attitude and Age

Age	N	Mean	Std. Dev.	F	Sig.	Remark
Upto 25 yrs	65	5.238	.606	24.142	.000*	Significant
26 to 35 yrs	143	5.660	.814			
36 to 45 yrs	126	6.019	.617			
46 to 55 yrs	45	6.077	.775			
Above 55 yrs	32	5.046	.428			
Total	411	5.701	.772			

Mean values of risk attitude for different age groups of upto 25years, 26 to 35 years, 36 to 45 years, 46 to 55 years and above 55 years are 5.238, 5.660, 6.019, 6.077 and 5.046 respectively. The result of ANOVA test shows F=24.142 and Sig. value= .000* which is less than α=.05. Hence, there exists a significant difference among the age groups on the dimension of risk attitude.

Based on the above results, H_{017} which states that there is no significant variation of risk attitude as a dimension of retail investor's behavior in futures trading with respect to age is not supported.

Table-4.14 (b): Multiple Comparisons of different Age groups

Respondents age (I)	Respondents age (J)	Mean diff. (I-J)	Sig.	Remark
Upto 25 yrs	26 to 35 yrs	-.422	.001*	Significant
Upto 25 yrs	36 to 45 yrs	-.781	.000*	Significant
Upto 25 yrs	46 to 55 yrs	-.839	.000*	Significant
Upto 25 yrs	Above 55 yrs	.191	.709	Significant
26 to 35 yrs	36 to 45 yrs	-.359	.000*	Significant
26 to 35 yrs	46 to 55 yrs	-.416	.005*	Significant
26 to 35 yrs	Above 55 yrs	.613	.000*	Insignificant
36 to 45 yrs	46 to 55 yrs	-.057	.989	Insignificant
36 to 45 yrs	Above 55 yrs	.972	.000*	Significant
46 to 55 yrs	Above 55 yrs	1.030	.000*	Significant

Table-4.14 (b) shows that most of the possible pair (I, J) groups have significant variations in their mean values among each pair with respect to risk attitude. But the pairs like (upto 25 years & above 55 years), and (36 to 45 years & 46 to 55 years) do not show any significant variation in their mean score with the dimension of risk attitude in futures trading.

The mean values are increasing with age of the investors till the age of 55 years and then it starts decreasing. It may be inferred that risk taking attitude of the investors increase with their age, but towards retirement (above 55 years) their risk taking attitude decreases in futures trading.

4.6.3: Variation in Personalization of Loss with Age

The table-4.15 (a) shows analysis of age with personalization of loss as a dimension of retail investor's trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of age.

Mean values of personalization of loss for different age groups of upto 25years, 26 to 35 years, 36 to 45 years, 46 to 55 years and above 55 years are 4.876, 4.706, 4.357, 4.111 and 4.359 respectively. The corresponding F=13.370 and Sig. value= .000* which is less than α=.05, hence there exists a significant difference among the age groups on the dimension of personalization of loss.

Table-4.15 (a): Descriptive statistics of Personalization of Loss and Age

Age	N	Mean	Std. Dev.	F	Sig.	Remark
Upto 25 yrs	65	4.876	.750	13.370	.000*	Significant
26 to 35 yrs	143	4.706	.597			
36 to 45 yrs	126	4.357	.784			
46 to 55 yrs	45	4.111	.498			
Above 55 yrs	32	4.359	.674			
Total	411	4.534	.721			

Based on the above results, H_{018} which states that there is no significant variation of personalization of loss as a dimension of retail investor's behavior in futures trading with respect to age is not supported.

Table-4.15 (b) shows mixed results. The pair (I, J) groups upto 25 years & 26 to 35 years, 26 to 35 years & above 55 years, 36 to 45 years & 46 to 55 years, 36 to 45 years & above 55 years and 46 to 55 years & above 55 years exhibits significant variation in their mean score, and rest of the pairs do not show any significant variation in their mean score with the dimension of personalization of loss in futures trading.

Table-4.15 (b): Multiple Comparisons of different Age groups

Respondents age (I)	Respondents age (J)	Mean diff. (I-J)	Sig.	Remark
Upto 25 yrs	26 to 35 yrs	.170	.452	Insignificant
Upto 25 yrs	36 to 45 yrs	.519	.000*	Significant
Upto 25 yrs	46 to 55 yrs	.765	.000*	Significant
Upto 25 yrs	Above 55 yrs	.517	.004*	Significant
26 to 35 yrs	36 to 45 yrs	.349	.000*	Significant
26 to 35 yrs	46 to 55 yrs	.595	.000*	Significant
26 to 35 yrs	Above 55 yrs	.346	.072	Insignificant
36 to 45 yrs	46 to 55 yrs	.246	.232	Insignificant
36 to 45 yrs	Above 55 yrs	-.002	1.000	Insignificant
46 to 55 yrs	Above 55 yrs	-.248	.514	Insignificant

It is inferred that young investors dabbling in trade in the beginning have a high tendency for personalization of loss. It may be due to their limited source of investible income which they invest with great ambition, but if it doesn't work in the expected way they take it to their heart. As the investors grow older, have better income and experience, they show a more relaxed attitude towards loss and hope to compensate this temporary loss with the gains in future trades. But towards the age of retirement, their resource of incomes become limited and thus gives way to a more personal response to losses.

4.6.4: Variation in Confidence with Age

The table-4.16(a) shows analysis of age with confidence as a dimension of retail investor's trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of age.

Table-4.16(a): Descriptive statistics of Confidence and Age

Age	N	Mean	Std. Dev.	F	Sig.	Remark
Upto 25 yrs	65	4.900	.464	47.456	.000*	Significant
26 to 35 yrs	143	5.442	.508			
36 to 45 yrs	126	5.773	.355			
46 to 55 yrs	45	5.730	.477			
Above 55 yrs	32	5.718	.317			
Total	411	5.511	.533			

Mean values of confidence for different age groups of upto 25years, 26 to 35 years, 36 to 45 years, 46 to 55 years and above 55 years are 4.900, 5.442, 5.773, 5.730 and 5.718 respectively. The corresponding F=47.456 and Sig. value= .000* which is less than α=.05. Hence, there exists a significant difference among the age groups on the dimension of confidence.

Based on the above results, H_{019} which states that there is no significant variation of confidence as a dimension of retail investor's behavior in futures trading with respect to age, is not supported.

The table-4.16(b) shows that most of the possible pair (I, J) groups have significant variation in their mean score as a dimension with confidence, but the age groups 36 to 45 yrs & 46 to 55 yrs, 36 to 45 yrs & Above 55 yrs and 46 to 55 yrs & Above 55 yrs are insignificant in their mean values.

Table-4.16(b) Multiple Comparisons of different Age groups

Respondents age (I)	Respondents age (J)	Mean diff. (I-J)	Sig.	Remark
Upto 25 yrs	26 to 35 yrs	-.542	.000*	Significant
Upto 25 yrs	36 to 45 yrs	-.873	.000*	Significant
Upto 25 yrs	46 to 55 yrs	-.830	.000*	Significant
Upto 25 yrs	Above 55 yrs	-.818	.000*	Significant
26 to 35 yrs	36 to 45 yrs	-.331	.000*	Significant
26 to 35 yrs	46 to 55 yrs	-.288	.002*	Significant
26 to 35 yrs	Above 55 yrs	-.276	.013*	Significant
36 to 45 yrs	46 to 55 yrs	.043	.980	Insignificant
36 to 45 yrs	Above 55 yrs	.055	.970	Insignificant
46 to 55 yrs	Above 55 yrs	.011	1.000	Insignificant

The mean values of younger investor when compared with those of older investors indicate that level of confidence increases with age. It may be inferred that young investors with their limited trading experience, limited funds to trade exhibit low confidence in futures trading while as the they grow up, their experience, income, knowledge increases and ultimately they become more confident in futures trading.

4.6.5: Variation in Control with Age

The table-4.17 (a) shows analysis of age with control as a dimension of retail investors' trading behavior in futures trading and describes the mean values and standard deviations of each group of respondents on the basis of age.

Table-4.17(a): Descriptive statistics of Control and Age

Age	N	Mean	Std. Dev.	F	Sig.	Remark
Upto 25 yrs	65	5.455	.369	29.307	.000*	Significant
26 to 35 yrs	143	5.695	.430			
36 to 45 yrs	126	6.039	.485			
46 to 55 yrs	45	6.124	.467			
Above 55 yrs	32	6.031	.341			
Total	411	5.836	.494			

Mean values of control for different age groups of upto 25years, 26 to 35 years, 36 to 45 years, 46 to 55 years and above 55 years are 5.455, 5.695, 6.039, 6.124 and 6.031 respectively. The ANOVA results shows F=29.307 and Sig. value= .000* which is less than α=.05, hence there exists a significant difference among the age groups on the dimension of control.

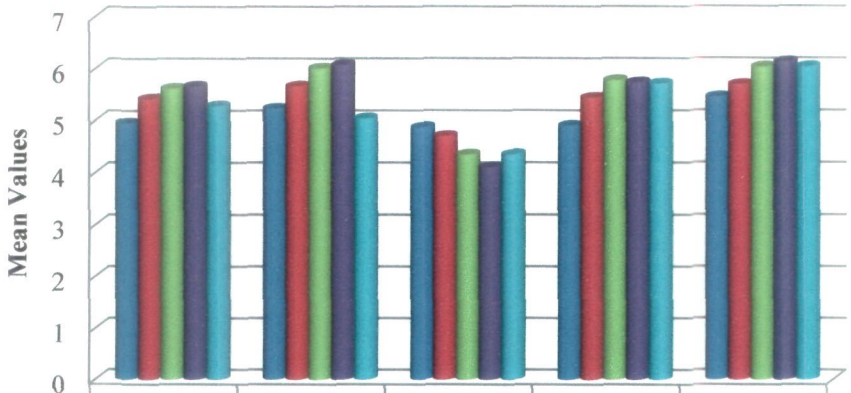
Based on the above results, H_{020} which states that there is no significant variation of control as a dimension of retail investor's behavior in futures trading with respect to age, is not supported.

Table-4.17 (b): Multiple Comparisons of different Age groups

Respondents age (I)	Respondents age (J)	Mean diff. (I-J)	Sig.	Remark
Upto 25 yrs	26 to 35 yrs	-.239	.003*	Significant
Upto 25 yrs	36 to 45 yrs	-.584	.000*	Significant
Upto 25 yrs	46 to 55 yrs	-.669	.000*	Significant
Upto 25 yrs	Above 55 yrs	-.575	.000*	Significant
26 to 35 yrs	36 to 45 yrs	-.344	.000*	Significant
26 to 35 yrs	46 to 55 yrs	-.429	.000*	Significant
26 to 35 yrs	Above 55 yrs	-.336	.001*	Significant
36 to 45 yrs	46 to 55 yrs	-.084	.798	Insignificant
36 to 45 yrs	Above 55 yrs	.008	1.000	Insignificant
46 to 55 yrs	Above 55 yrs	.093	.889	Insignificant

The table-4.17 (b) shows the results of post-hoc test. The results shows that most of the possible pair (I, J) groups have significant variation in their mean score as a dimension with control, except the pair groups 36 to 45 years & 46 to 55 years, 36 to 45 years & above 55 years and 46 to 55 years & above 55 years. The mean values of younger investors when compared with those of older investors indicate that level of control increases with age. It may be inferred that young investors exhibit low control on futures trading, which may be due to their limited knowledge. Young investors rely on information gathered from others and as a result they are less confident. But as the investors grow up, their knowledge of different dimensions of futures trading increases, they believe in their self collected information, they become more confident and hold more control on their futures trading. And towards the retirement age of the investors, again the control on their futures trading starts decreasing, this may be due to their less risk taking attitude and limited source of income.

Table-4.4
A summary of Investment Dimensions with Age



	IHOR	RATD	PLOS	CONF	CONT
Upto 25 yrs (65)	4.95	5.23	4.87	4.9	5.45
26 to 35 yrs (143)	5.42	5.66	4.7	5.44	5.69
36 to 45 yrs (126)	5.62	6.01	4.35	5.77	6.03
46 to 55 yrs (45)	5.66	6.07	4.11	5.73	6.12
Above 55 yrs (32)	5.28	5.04	4.35	5.71	6.03

IHOR=Investment Horizon, RATD=Risk Attitude, PLOS=Personalization of Loss, CONF= Confidence, CONT=Control

4.7 Dimensions of Investment versus Occupation

The analysis and results of retail investors' occupation and its' variation on different dimensions such as investment horizon, risk attitude, personalization of loss, confidence and control have been discussed here one by one. Total respondents of the present study were categorized into five different occupational groups: Government job holders (181), Businessmen (89), Private job-holders (73), Housewives (30), and Others (38) who do not belong to any mentioned category.

4.7.1: Variation in Investment Horizon with Occupation

The table-4.18 (a) shows analysis of occupation with investment horizon as a dimension of retail investor's trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of occupation.

Table-4.18 (a): Descriptive statistics of Investment Horizon and Occupation

Occupation	N	Mean	Std Dev.	F	Sig.	Remark
Government job holders	181	5.334	.377	59.852	.000*	Significant
Businessmen	89	5.573	.390			
Private job holders	73	5.869	.314			
Housewives	30	4.833	.317			
Others	38	5.138	.342			
Total	411	5.426	.455			

The mean values of investment horizon for different occupational groups like government job holders, businessmen, private job holders, housewives and others are 5.334, 5.573, 5.869, 4.833 and 5.138 respectively. The results of ANOVA shows F=59.852 and Sig. value= .000* which is less than α=.05, hence there exists a significant difference among the different occupational groups on the dimension of investment horizon.

Based on the above results, H_{021} which states that there is no significant variation of investment horizon as a dimension of retail investor's behavior in futures trading with respect to occupation is not supported.

The mean values of government job holders, businessmen and private job holders (5.334, 5.573, 5.869) indicate more predetermined investment horizon in futures trading when compared with those of housewives and others (4.833, 5.138).

From the above results it may be inferred that government job holders, businessmen, and private job holders as investors have comparatively broader investment horizon. It may be attributed to their higher income, better exposure to information and higher level of confidence. At the same time, housewives and others exhibit low level of investment horizon. It may be due to their limited income and information along with less exposure related to futures trading, causing them to invest in a more circumspect manner.

Table-4.18 (b): Multiple Comparisons of different Occupational groups

Respondents occupation (I)	**Respondents occupation (J)**	**Mean diff. (I-J)**	**Sig.**	Remark
Government job holders	Businessmen	-.238	.000*	Significant
Government job holders	Private job holders	-.535	.008*	Significant
Government job holders	Housewives	.500	.008*	Significant
Government job holders	Others	.196	.022*	Significant
Businessmen	Private job holders	-.296	.000*	Significant
Businessmen	Housewives	.739	.000*	Significant
Businessmen	Others	.434	.000*	Significant
Private job holders	Housewives	1.036	.000*	Significant
Private job holders	Others	.731	.000*	Significant
Housewife	Others	-.304	.006*	Significant

Table-4.18 (b) shows that all the possible combinations of pair (I, J) groups of different occupations have significant variation in their mean score with respect to investment horizon.

4.7.2: Variation in Risk Attitude with Occupation

Table-4.19 (a) shows analysis of occupation with risk attitude as a dimension of retail investor's trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of occupation.

The mean values of risk attitude for different occupational groups like government job holders, businessmen, private job holders, housewives and others are 5.657,

5.932, 6.363, 4.666 and 4.921 respectively. The results of ANOVA show F=61.479 and Sig. value= .000* which is less than α=.05. Hence, there exists a significant difference among the occupation groups on the dimension of risk attitude.

Table-4.19 (a): Descriptive statistics of Risk Attitude and Occupation

Occupation	N	Mean	Std. Dev.	F	Sig.	Remark
Government job holders	181	5.657	.661	61.479	.000*	Significant
Businessmen	89	5.932	.711			
Private job holders	73	6.363	.572			
Housewives	30	4.666	.239			
Others	38	4.921	.318			
Total	411	5.701	.772			

Based on the above results, H_{022} which states that there is no significant variation of risk attitude as a dimension of retail investor's behavior in futures trading with respect to occupation is not supported.

Table-4.19 (b): Multiple Comparisons of different Occupational groups

Respondents occupation (I)	Respondents occupation (J)	Mean diff. (I-J)	Sig.	Remark
Government job holders	Businessmen	-.275	.005*	Significant
Government job holders	Private job holders	-.705	.000*	Significant
Government job holders	Housewives	.990	.000*	Significant
Government job holders	Others	.736	.000*	Significant
Businessmen	Private job holders	-.430	.000*	Significant
Businessmen	Housewives	1.265	.000*	Significant
Businessmen	Others	1.011	.000*	Significant
Private job holders	Housewives	1.696	.000*	Significant
Private job holders	Others	1.441	.000*	Significant
Housewife	Others	-.254	.435	Insignificant

Table-4.19 (b) shows the results of post-hoc test indicating that all the possible pairs (I, J) of occupational groups have significant variation in their mean scores with respect to risk attitude. Only the pair housewives & others did not show significant variation in their mean score with respect to risk attitude.

The mean values of government job holders, businessmen and private job holders (5.657, 5.932, 6.363) show more risk taking capacity in futures trading when compared with those of housewives and others (4.666, 4.921).

It may be inferred that the investors with occupation offering regular income and easy access to investment related information and knowledge are taking more risk in futures trading.

4.7.3: Variation in Personalization of Loss with Occupation

The table-4.20 (a) shows analysis of occupation with personalization of loss as a dimension of retail investor's trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of occupation.

Mean values of personalization of loss for different occupational groups of government job holders, businessmen, private job holders, housewives and others are 4.428, 4.415, 4.431, 5.000 and 5.144 respectively. The ANOVA results show F=13.294 and Sig. value= .000* which is less than α=.05. Hence there exists a significant difference among the occupational groups on the dimension of personalization of loss.

Table-4.20 (a): Descriptive statistics of Personalization of Loss and Occupation

Occupation	N	Mean	Std. Dev.	F	Sig.	Remark
Government job holders	181	4.428	.671	13.294	.000*	Significant
Businessmen	89	4.415	.743			
Private job holders	73	4.431	.708			
Housewives	30	5.000	.415			
Others	38	5.144	.696			
Total	411	4.534	.721			

Based on the above results, H_{023} which states that there is no significant variation of personalization of loss as a dimension of retail investor's behavior in futures trading with respect to occupation, is not supported.

The mean values of government job holders, businessmen and private job holders (4.428, 4.415, 4.431) show less personalization of loss in futures trading when compared with those of housewives and others (5.000, 5.145).

It may be inferred that the investors with occupation offering regular income shows an openness towards loss and take it as a temporary loss which they expect to compensate with the gains in future trades.

Table-4.20 (b): Multiple Comparisons of different Occupational groups

Respondents occupation (I)	Respondents occupation (J)	Mean diff. (I-J)	Sig.	Remark
Government job holders	Businessmen	.012	1.000	Insignificant
Government job holders	Private job holders	-.003	1.000	Insignificant
Government job holders	Housewives	-.571	.000*	Significant
Government job holders	Others	-.716	.000*	Significant
Businessmen	Private job holders	-.015	1.000	Insignificant
Businessmen	Housewives	-.584	.000*	Significant
Businessmen	Others	-.729	.000*	Significant
Private job holders	Housewives	-.568	.001*	Significant
Private job holders	Others	-.713	.000*	Significant
Housewife	Others	-.144	.908	Insignificant

The table-4.20 (b) shows that some pair (I, J) groups have significant variation in their mean values and some are not. The groups of government job holders & businessmen, government job holders & private job holders, businessmen & private job holders and housewives & others, do not show significant differences in their mean values. But the groups of government job holders & housewives, government job holders & others, businessmen & housewives, businessmen & others, private job holders & housewives and private job holders & others show significant variations in their mean values with respect to personalization of loss.

4.7.4: Variation in Confidence with Occupation

Table-4.21 (a) shows analysis of occupation with confidence as a dimension of retail investor's trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of occupation.

Table-4.21 (a): Descriptive statistics of Confidence and Occupation

Occupation	N	Mean	Std. Dev.	F	Sig.	Remark
Government job holders	181	5.543	.467	41.099	.000*	Significant
Businessmen	89	5.661	.514			
Private job holders	73	5.799	.413			
Housewives	30	4.750	.274			
Others	38	5.052	.403			
Total	411	5.511	.533			

Mean values of confidence for different occupational groups of government job holders, businessmen, private job holders, housewives and others are 5.543, 5.661,

5.799, 4.750 and 5.052 respectively. The results of ANOVA show F=41.099 and Sig. value= .000* which is less than α=.05, hence there exist a significant difference among the occupation groups on the dimension of confidence.

Based on the above results, H_{024} which states that there is no significant variation of confidence as a dimension of retail investor's behavior in futures trading with respect to occupation, is not supported.

Table-4.21 (b): Multiple Comparisons of different Occupational groups

Respondents occupation (I)	Respondents occupation (J)	Mean diff. (I-J)	Sig.	Remark
Government job holders	Businessmen	-.118	.261	Insignificant
Government job holders	Private job holders	-.256	.001	Significant
Government job holders	Housewives	.793	.000	Significant
Government job holders	Others	.490	.000	Significant
Businessmen	Private job holders	-.138	.301	Insignificant
Businessmen	Housewife	.911	.000	Significant
Businessmen	Others	.608	.000	Significant
Private job holders	Housewives	1.049	.000	Significant
Private job holders	Others	.747	.000	Significant
Housewives	Others	-.302	.050	Insignificant

Table-4.21 (b) shows that most of the possible pair (I, J) of occupational groups have significant variation in their mean scores with respect to confidence except the pairs government job holders & businessmen, businessmen & private job holders and housewives & others.

The mean values of government job holders, businessmen and private job holders (5.543, 5.661, 5.799) show more confidence in futures trading when compared with those of housewives and others (4.750, 5.052). It may be inferred that the investors who belong to government jobs, business and private jobs believe in their own investment decisions and information. They make considerable effort in researching for their investment and they do not bother about stock market fluctuations. So, they are more confident in futures trading. But housewives and others may have less knowledge related to futures trading and they depend upon informal sources of information causing lesser confidence in futures trading.

4.7.5: Variation in Control with Occupation

Table-4.22 (a) shows analysis of occupation with control as a dimension of retail investor's trading behavior and describes the mean value and standard deviation of each group of respondents on the basis of occupation.

Table-4.22 (a): Descriptive statistics of Control and Occupation

Occupation	N	Mean	Std. Dev	F	Sig.	Remark
Government job holders	181	5.938	.442	38.616	.000*	Significant
Businessmen	89	5.698	.466			
Private job holders	73	6.172	.399			
Housewives	30	5.200	.287			
Others	38	5.526	.339			
Total	411	5.836	.494			

Mean values of control for different occupational groups of government job holders, businessmen, private job holders, housewives and others are 5.938, 5.698, 6.172, 5.200 and 5.526 respectively. The results of ANOVA show F=38.616 and Sig. value= .000* which is less than α=.05, hence there exist a significant difference among the occupational groups on the dimension of control.

Based on the above results, H_{025} which states that there is no significant variation of control as a dimension of retail investor's behavior in futures trading with respect to occupation, is not supported.

The mean values of government job holders, businessmen and private job holders (5.938, 5.698, 6.172) show more control in futures trading when compared with those of housewives and others (5.200, 5.526). It may be inferred that the investors who belong to government job, business and private jobs check the performance of their investment frequently. They may have immediate access to their investment and more confidence in decision making. It results in more control in futures trading. But in the case of housewives and others, they may not be able to check their futures contract frequently and depend on brokers or other sources of information. And they may not have immediate access to their brokers due to lack of infrastructure and as a result they exhibit low level of control in futures trading.

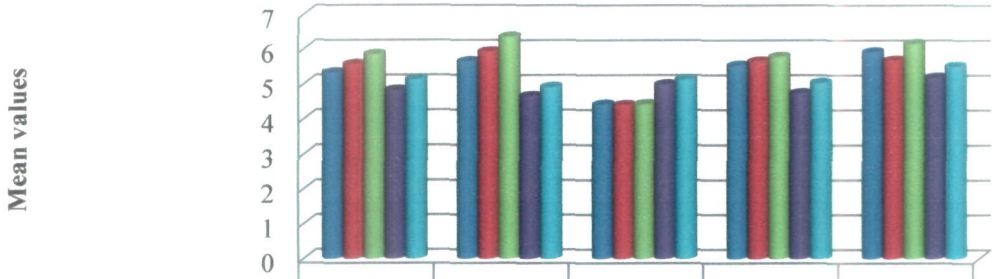
Table-4.22 (b) shows that most of the possible pairs (I, J) of occupational groups except of businessmen & others have significant variation in their mean scores with respect to control.

Table-4.22 (b): Multiple Comparisons of different Occupational groups

Respondents occupation (I)	Respondents occupation (J)	Mean diff. (I-J)	Sig.	Remark
Government job holders	Businessmen	.239	.000*	Significant
Government job holders	Private job holders	-.234	.001*	Significant
Government job holders	Housewives	.738	.000*	Significant
Government job holders	Others	.411	.000*	Significant
Businessmen	Private job holders	-.473	.000*	Significant
Businessmen	Housewives	.498	.000*	Significant
Businessmen	Others	.172	.219	Insignificant
Private job holders	Housewives	.972	.000*	Significant
Private job holders	Others	.646	.000*	Significant
Housewives	Others	-.326	.015*	Significant

Figure 4.5 shows the overall analysis of occupation on different dimensions of retail investor's trading behavior in futures trading. The mean values indicate that most of the dimensions have significant variations with respect to occupation of the retail investors.

Figure 4.5
A summary of Investment Dimensions with Occupation



	IHOR	RATD	PLOS	CONF	CONT
Govt. Job Holders	5.33	5.65	4.42	5.54	5.93
Businessmen	5.57	5.93	4.41	5.66	5.69
Privt. Job Holders	5.86	6.36	4.43	5.79	6.17
Housewives	4.83	4.66	5	4.75	5.2
Others	5.13	4.92	5.14	5.05	5.52

IHOR=Investment Horizon, RATD=Risk Attitude, PLOS=Personalization of Loss, CONF= Confidence, CONT=Control

4.8 Dimensions of Investment versus Experience

The analysis and results of retail investors' experience and its' variation on different dimensions such as investment horizon, risk attitude, personalization of loss, confidence and control have been discussed here one by one. Total respondents of the present study were categorized into five different experienced groups: upto 2 years, 2 to 4 years, 4 to 6 years, 6 to 8 years, and above 8 years.

4.8.1: Variation in Investment Horizon with Experience

Table-4.23 (a) shows the analysis of experience with respect to investment horizon as a dimension of retail investor's trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of experience.

Mean values of investment horizon for different experience groups of upto 2 years, 2 to 4 years, 4 to 6 years, 6 to 8 years and above 8 years are 5.107, 5.318, 5.725, 5.580 and 5.692 respectively. The results of ANOVA show F=36.834 and Sig. value= .000* which is less than α=.05, hence there exist a significant variation among the different experienced groups on the dimension of investment horizon.

Table-4.23 (a): Descriptive statistics of Investment Horizon and Experience

Occupation	N	Mean	Std. Dev	F	Sig.	Remark
Upto 2 years	98	5.107	.409	36.834	.000*	Significant
2 to 4 years	121	5.318	.391			
4 to 6 years	92	5.725	.272			
6 to 8 years	87	5.580	.447			
Above 8 years	13	5.692	.560			
Total	411	5.426	.455			

Based on the above results, H_{026} which states that there is no significant variation of investment horizon as a dimension of retail investor's behavior in futures trading with respect to experience is not supported.

The table-4.23 (b) shows that most of the possible pairs (I, J) of experienced groups except "4 to 6 years & 6 to 8 years", "4 to 6 years & above 8 years" and "6 to 8 years & above 8 years" have significant variation in their mean score with respect to investment horizon.

Table-4.23 (b): Multiple Comparisons of different Experience groups

Respondents Experience (I)	Respondents Experience (J)	Mean diff. (I-J)	Sig.	Remark
Upto 2 years	2 to 4 years	-.211	.001*	Significant
Upto 2 years	4 to 6 years	-.618	.000*	Significant
Upto 2 years	6 to 8 years	-.473	.000*	Significant
Upto 2 years	Above 8 years	-.585	.000*	Significant
2 to 4 years	4 to 6 years	-.407	.000*	Significant
2 to 4 years	6 to 8 years	-.262	.000*	Significant
2 to 4 years	Above 8 years	-.374	.010*	Significant
4 to 6 years	6 to 8 years	.145	.098	Insignificant
4 to 6 years	Above 8 years	.033	.999	Insignificant
6 to 8 years	Above 8 years	-.111	.873	Insignificant

The mean values of investors' who have experience of upto 2 years and 2 to 4 years (5.107, 5.318) when compared with those of 4 to 6 years, 6 to 8 years and above 8 years (5.725, 5.580, 5.692) indicate that more experienced investors are more investment horizon oriented. It may be inferred that investors who are more experienced may have more confidence and knowledge of futures trading so they have more predetermined investment horizon as compared to those who are less experienced.

4.8.2: Variation in Risk Attitude with Experience

Table-4.24 (a) shows the analysis of experience with respect to risk attitude as a dimension of retail investors' trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of experience.

Table-4.24 (a): Descriptive statistics of Risk Attitude and Experience

Occupation	N	Mean	Std. Dev	F	Sig.	Remark
Upto 2 years	98	5.469	.851	20.164	.000*	Significant
2 to 4 years	121	5.454	.645			
4 to 6 years	92	6.233	.617			
6 to 8 years	87	5.689	.712			
Above 8 years	13	6.076	.672			
Total	411	5.701	.772			

Mean values of risk attitude for different experience groups of upto 2 years, 2 to 4 years, 4 to 6 years, 6 to 8 years and above 8 years are 5.469, 5.454, 6.233, 5.689 and 6.076 respectively. The results of ANOVA show F=20.164 and Sig. value= .000* which is less than α=.05, hence there exist a significant variation among the different experienced groups on the dimension of risk attitude.

Based on the above results, H_{027} which states that there is no significant variation of risk attitude as a dimension of retail investor's behavior in futures trading with respect to experience is not supported.

Table-4.24 (b): Multiple Comparisons of different Experience groups

Respondents Experience (I)	Respondents Experience (J)	Mean diff. (I-J)	Sig.	Remark
Upto 2 years	2 to 4 years	.014	1.000	Insignificant
Upto 2 years	4 to 6 years	-.764	.000*	Significant
Upto 2 years	6 to 8 years	-.220	.218	Insignificant
Upto 2 years	Above 8 years	-.607	.032	Significant
2 to 4 years	4 to 6 years	-.779	.000*	Significant
2 to 4 years	6 to 8 years	-.235	.129	Insignificant
2 to 4 years	Above 8 years	-.622	.023*	Significant
4 to 6 years	6 to 8 years	.544	.000*	Significant
4 to 6 years	Above 8 years	.156	.945	Insignificant
6 to 8 years	Above 8 years	-.387	.354	Insignificant

Table-4.24 (b) shows that some of the possible pairs (I, J) of experience group have significant variation in their mean values and some are not. The pair groups "upto 2 year & 2 to 4 years", "upto 2 years & 6 to 8 years", "2 to 4 years & 6 to 8 years", 4 to 6 years & above 8 years" and "6 to 8 years & above 8 years", are insignificant with their mean score as a dimension risk attitude. Whereas the pair groups "upto2 years &4 to 6 years", upto 2 years & above 8 years", "2 to 4 years & 4 to 6 years", 2 to 4 years & above 8 years" and "4 to 6 years & 6 to 8 years", have significant variation in their mean score as a dimension with risk attitude.

The mean values of investors who have experience of upto 2 years and 2 to 4 years (5.469, 5.454) when compared with those of 4 to 6 years, 6 to 8 years and above 8 years (6.233, 5.689, 6.076) indicate that more experienced investors have more risk taking capacity. It may be inferred that investors' who are more experienced may have more confidence and knowledge of futures trading so they have more risk taking capacity as compared to those who are less experienced.

4.8.3: Variation in Personalization of Loss with Experience

Table-4.25 (a) shows analysis of experience with personalization of loss as a dimension of retail investors' trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of experience.

Table-4.25 (a): Descriptive statistics of Personalization of Loss and Experience

Occupation	N	Mean	Std. Dev	F	Sig.	Remark
Upto 2 years	98	5.005	.733	23.933	.000*	Significant
2 to 4 years	121	4.628	.640			
4 to 6 years	92	4.288	.580			
6 to 8 years	87	4.201	.679			
Above 8 years	13	4.076	.277			
Total	411	4.534	.721			

Mean values of risk attitude for experience groups of upto 2 years, 2 to 4 years, 4 to 6 years, 6 to 8 years and above 8 years are 5.005, 4.628, 4.288, 4.201, and 4.076 respectively. The results of ANOVA shows F=23.933 and Sig. value= .000* which is less than α=.05, hence there exist a significant variation among the experience groups on the dimension of personalization of loss.

Based on the above results, H_{028} which states that there is no significant variation of personalization of loss as a dimension of retail investor's behavior in futures trading with respect to experience is not supported.

Table-4.25 (b): Multiple Comparisons of different Experience groups

Respondents Experience (I)	Respondents Experience (J)	Mean diff. (I-J)	Sig.	Remark
Upto 2 years	2 to 4 years	.377	.000*	Significant
Upto 2 years	4 to 6 years	.717	.000*	Significant
Upto 2 years	6 to 8 years	.803	.000*	Significant
Upto 2 years	Above 8 years	.928	.000*	Significant
2 to 4 years	4 to 6 years	.340	.002*	Significant
2 to 4 years	6 to 8 years	.426	.000*	Significant
2 to 4 years	Above 8 years	.551	.032*	Significant
4 to 6 years	6 to 8 years	.086	.900	Insignificant
4 to 6 years	Above 8 years	.211	.811	Insignificant
6 to 8 years	Above 8 years	.124	.968	Insignificant

The mean values of investors who have experienced of upto 2 years and 2 to 4 years (5.005, 4.628) when compared with those of 4 to 6 years, 6 to 8 years and

above 8 years (4.288, 4.201, 4.076) indicate that investors who are more experienced have less personalization of loss in futures trading.

It may be inferred that investors with little experience of futures trading feel unfortunate when a trade goes wrong, they feel their losses to be heavier than any of their gains. Whereas investors who are more experienced, they might have matured up in their response to loss. It may be inferred that with experience investors gain confidence and knowledge which adds to their risk taking attitude, can accept loss a part of the trade. Resultantly their regret lessens as experience grows.

4.8.4: Variation in Confidence with Experience

The table-4.26 (a) shows analysis of variation in confidence with investor's experience of futures trading as a dimension of retail investors' trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of experience.

Table-4.26 (a): Descriptive statistics of Confidence and Experience

Occupation	N	Mean	Std. Dev	F	Sig.	Remark
Upto 2 years	98	5.150	.603	38.377	.000*	Significant
2 to 4 years	121	5.358	.412			
4 to 6 years	92	5.864	.450			
6 to 8 years	87	5.699	.331			
Above 8 years	13	5.894	.287			
Total	411	5.511	.533			

Mean values of confidence for different experience groups of upto 2 years, 2 to 4 years, 4 to 6 years, 6 to 8 years and above 8 years are 5.150, 5.358, 5.864, 5.699, and 5.894 respectively. The results ANOVA shows F=38.377 and Sig. value= .000* which is less than α=.05, hence there exist a significant variation among the experience groups with respect to the dimension of confidence.

Based on the above results, H_{029} which states that there is no significant variation of confidence as a dimension of retail investor's behavior in futures trading with respect to experience is not supported.

The table-4.26 (b) shows that most of the possible pairs (I, J) of experienced groups except "4 to 6 years & 6 to 8 years", "4 to 6 years & above 8 years" and 6 to 8 years & above 8 years have significant variation in their mean score with respect to confidence.

Table-4.26 (b): Multiple Comparisons of different Experience groups

Respondents Experience (I)	Respondents Experience (J)	Mean diff. (I-J)	Sig.	Remark
Upto 2 years	2 to 4 years	-.207	.008*	Significant
Upto 2 years	4 to 6 years	-.713	.000*	Significant
Upto 2 years	6 to 8 years	-.549	.000*	Significant
Upto 2 years	Above 8 years	-.743	.000*	Significant
2 to 4 years	4 to 6 years	-.505	.000*	Significant
2 to 4 years	6 to 8 years	-.341	.000*	Significant
2 to 4 years	Above 8 years	-.535	.001*	Significant
4 to 6 years	6 to 8 years	.164	.116	Insignificant
4 to 6 years	Above 8 years	-.030	.999	Insignificant
6 to 8 years	Above 8 years	-.194	.607	Insignificant

The mean values of investors who have experience of upto 2 years and 2 to 4 years (5.150, 5.358) when compared with those of 4 to 6 years, 6 to 8 years and above 8 years (5.864, 5.699, 5.894) indicate that investors who are more experienced show more confidence in futures trading.

It may be inferred that practice makes a man perfect, it applies to investment decision making too. Those who are more experienced show a more self reliant nature instead of consulting or agreeing to others' suggestions. They seem to understand the fluctuations as part of trading. Thus their decisions reflect a more confident approach.

4.8.5: Variation in Control with Experience

The table-4.27 (a) shows analysis of control versus retail investor's experience of futures trading as a dimension of trading behavior and describes the mean values and standard deviations of each group of respondents on the basis of experience.

Mean values of control for different experience groups of upto 2 years, 2 to 4 years, 4 to 6 years, 6 to 8 years and above 8 years are 5.495, 5.603, 6.278, 6.025,

and 6.169 respectively. The results of ANOVA shows F=68.705 and Sig. value= .000* which is less than α=.05, hence there exist a significant difference among the experience groups on the dimension of confidence.

Table-4.27 (a): Descriptive statistics of Control and Experience

Occupation	N	Mean	Std. Dev	F	Sig.	Remark
Upto 2 years	98	5.495	.306	68.705	.000*	Significant
2 to 4 years	121	5.603	.483			
4 to 6 years	92	6.278	.412			
6 to 8 years	87	6.025	.284			
Above 8 years	13	6.169	.110			
Total	411	5.836	.494			

Based on the above results, H_{030} which states that there is no significant variation of control as a dimension of retail investor's behavior in futures trading with respect to experience is not supported.

Table-4.27 (b): Multiple Comparisons of different Experience groups

Respondents Experience (I)	Respondents Experience (J)	Mean diff. (I-J)	Sig.	Remark
Upto 2 years	2 to 4 years	-.107	.240	Insignificant
Upto 2 years	4 to 6 years	-.782	.000*	Significant
Upto 2 years	6 to 8 years	-.529	.000*	Significant
Upto 2 years	Above 8 years	-.673	.000*	Significant
2 to 4 years	4 to 6 years	-.674	.000*	Significant
2 to 4 years	6 to 8 years	-.421	.000*	Significant
2 to 4 years	Above 8 years	-.565	.000*	Significant
4 to 6 years	6 to 8 years	.252	.000*	Significant
4 to 6 years	Above 8 years	.109	.873	Insignificant
6 to 8 years	Above 8 years	-.143	.715	Insignificant

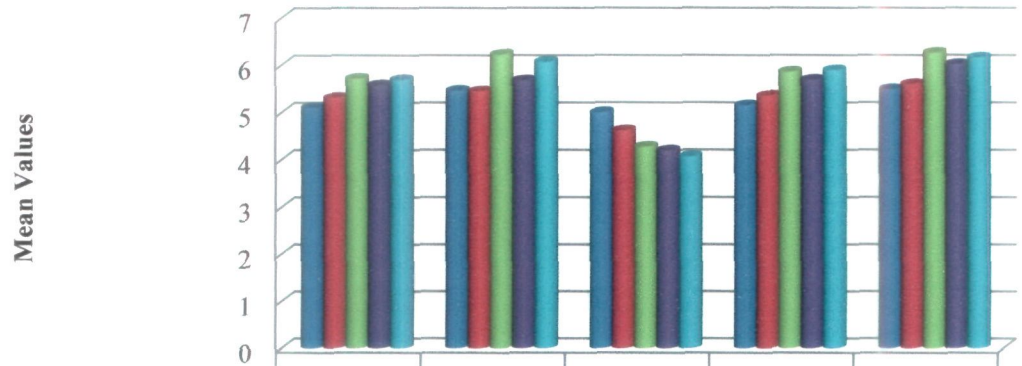
Table-4.27 (b) shows that most of the possible pairs (I, J) of different experience groups have significant variation in their mean values. While the groups "upto 2 years & 2 to 4 years", "4 to 6 years & above 8 years" and "6 to 8 years & above 8 years", do not exhibit significant variation in their mean score as a dimension with control.

The mean values of investors who have experience of upto 2 years and 2 to 4 years (5.495, 5.603) when compared with those of 4 to 6 years, 6 to 8 years and above 8 years (6.278, 6.025, 6.169) indicate that investors who are more experienced show more control in futures trading.

It may be inferred that investors who are more experienced exhibit more control in futures trading as compared to less experienced one. It may be said here that experience lends control over investors' decisions greatly. The results thus inferred mean that experience of the retail investors' influences their controlling attitude in investment decisions. It may be due to their confidence in the validity of their self collected information, their continuous self performance check, knowledge based decisions before any action and the immediate access to their investments reflect the importance of experience.

Figure 4.6 shows the overall analysis of experience on different dimensions of retail investors' trading behavior in futures trading. The mean values indicate that most of the dimensions have significant variations with respect to occupation.

Figure-4.6
A summary Investment Dimensions with Experience



	IHOR	RATD	PLOS	CONF	CONT
Upto 2 years (98)	5.1	5.46	5	5.15	5.49
2 to 4 years (121)	5.31	5.45	4.62	5.35	5.6
4 to 6 years (92)	5.72	6.23	4.28	5.86	6.27
6 to 8 years (87)	5.58	5.68	4.2	5.69	6.02
Above 8 years (13)	5.69	6.07	4.07	5.89	6.16

IHOR=Investment Horizon, RATD=Risk Attitude, PLOS=Personalization of Loss, CONF=Confidence, CONT=Control

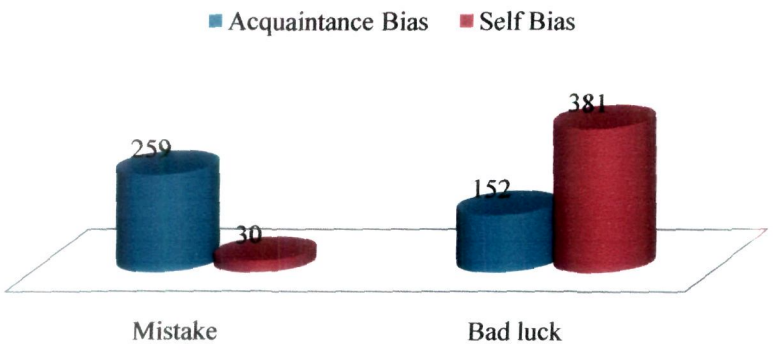
4.9 Investors and their trading Attitude

There is an inclination for behavioral biases among the Indian investors during their investment decision making process. The experts of behavioral finance believe that individuals in investment decisions do not always act as rational beings, or perhaps they can't by laws of nature. Their investment decisions are guided by their desires, goals, emotions and prejudices. This section of the study tries to show the influence of demographic variables on investors' self-attribution bias, over-and under-reaction, reference dependence, loss aversion etc. Investors' choice and their preferences on different aspects of futures trading also have been focused in the present section. Chi-square test (χ^2) has been used to examine the statistical significance of investors with respect to their demographic factors. Stock based index futures or equity-futures have been considered simply as 'futures' for the convenience of the present study.

4.9.1 Self Attribution Bias of Retail Investor

Self-attribution bias refers to the tendency of people to believe that they are better than others. They always estimate themselves to be right, whereas self assessment has ever been talked of in terms of either overestimation or underestimation. That's why such people attribute successful outcomes to themselves, and unsuccessful outcomes to bad luck. To study the self-attribution bias, a loss-making situation was presented before the retail investors and they were asked whether they felt the loss was because of their mistake or bad luck. People who attributed losses to 'bad luck' or other reasons for their wrong decisions can be categorized to have a high self-attribution bias (Mittal &Vyas, 2009).

Figure-4.7: Self- Attribution Bias



The results show that retail investors are prone to self-attribution bias (figure-4.7). When investors were asked, why their acquaintances like friends, colleagues, etc. suffer from losses in futures market? Around 63% of the respondents expressed belief that their acquaintance might have made a mistake in trading and only 37% blamed their acquaintances' bad luck. When the same question was asked to the respondents, then only 7% of the investors admitted that they had made a mistake by choosing a wrong futures contract, while 93% of them blamed their bad luck for their wrong decision. It may be inferred that retail investors have a high self-attribution bias due to which they often make wrong decisions in futures trading.

It could further be inferred that if self attribution bias is high then the investor would hardly try to locate the causes behind the losses and would simply blame it on bad luck. However if the self attribution bias is low then it may make the investor to take a personal responsibility for the losses and think about what probably went wrong. Thus, it may lead to the identification of factor(s) leading to the losses and one may refrain from committing similar mistakes in the future.

To study whether the self-attribution bias varies significantly with investor's demographic factors (Gender, Education, Income, Age, Occupation and Experience), the Chi-square test was applied (Table-4.28).

Table-4.28: Analysis of Self Attribution Bias with respect to Demographics

SN	Demographic Factors	Bias against their acquaintance			Self attribution bias		
		Chi-Square (χ^2)	Df	Sig.	Chi-Square (χ^2)	Df	Sig.
1	Gender	26.506	1	.000*	7.943	1	.005*
2	Education	10.992	4	.027*	19.609	4	.001*
3	Income	44.672	3	.000*	30.041	3	.000*
4	Age	89.535	4	.000*	20.759	4	.000*
5	Occupation	39.057	4	.000*	40.840	4	.000*
6	Experience	38.069	4	.000*	79.936	4	.000*

From the results it is found that all the demographic factors show significant value, which is less than .05. Hence, it may be inferred that there exist significant

differences in investors' self attribution bias with respect to their demographic factors. Demographically different types of investors may have different levels of self attribution bias in futures trading.

Based on the above results, H_{031} which states that there is no significant variation in *self attribution bias* of the investors based on their demographic variables (gender, education, income, age, occupation and experience) is not supported.

4.9.2 Retail Investor's Overreaction in Futures Trading

The tendency of overreaction in the respondents was determined by asking them to indicate which of the sequence is more likely when a coin is tossed six times-HHHTTT or HTHTTH. One appeared systematic (HHHTTT), while the second appeared random (HTHTTH). Probability theory suggests that the probabilities of both the outcomes are equal, but most of the retail investors erroneously believe that the random sequence is more likely than the first. Most people are far too quick to perceive causal regularity in random sequence of events (Kahnemann & Riepe, 1998). Investors indicating HTHTTH are more likely to overreact (Mittal & Vyas 2009).

Figure-4.8 Investor's Overreaction

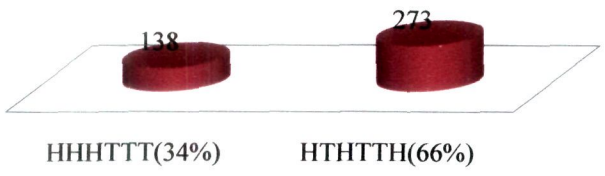


Figure-4.8 reveals that retail investors are prone to overreact by over-estimation. Around 66% of the respondents indicated the likelihood of the random sequence (HTHTTH) while only 34% appeared systematic (HHHTTT) on tossing of a coin. The level of sanity and balance represented by the regular HHHTTT symbol has few takers. Out of this test, it may be inferred that the respondents have a tendency of overreaction.

The common tendency of investor's overreaction may be due to the reason that they tend to put more weight on the recent news, as compared to past data. People tend to be optimistic when the market goes up and pessimistic, if the market comes down. Investors may overreact because complete and accurate information is never available (Mittal & Vyas, 2009). Even if it is assumed that such a set of information is made available to the public, their ability to process information is limited (Pavabutr, 2002), making them to settle for sub-optimal decisions.

Table-4.29: Analysis of Overreaction with respect to Demographics

SN	Demographic Factors	Investor's Overreaction		
		Chi-Square (χ^2)	Df	Sig.
1	Gender	.542	1	.462
2	Education	79.511	4	.000*
3	Income	86.154	3	.000*
4	Age	49.864	4	.000*
5	Occupation	37.165	4	.000*
6	Experience	72.172	4	.000*

The analyses of the statistical test of overreaction with demographic variables have been shown in table- 4.29. Investor's overreaction is statistically almost similar with respect to their gender (χ^2=.542, sig. =.462). It may be inferred that both males and females react in almost similar way to any financial news. While statistically significant differences are obtained for investor's overreaction with respect to their education, income, age, occupation and experience. It may be inferred that investor's education, income, age, occupation and experience influences in overreacting against any financial new.

Based on the above results, H_{032} which states that there is no significant variation in *over-reaction* of the investors based on their demographic variables (education, income, age, occupation and experience) is not supported. However, this is supported across gender.

4.9.3 Purchase Price as Reference Point

One of the major behavioral biases observed in the investors is that they tend to use purchase price as the reference point and make decisions based on it. They

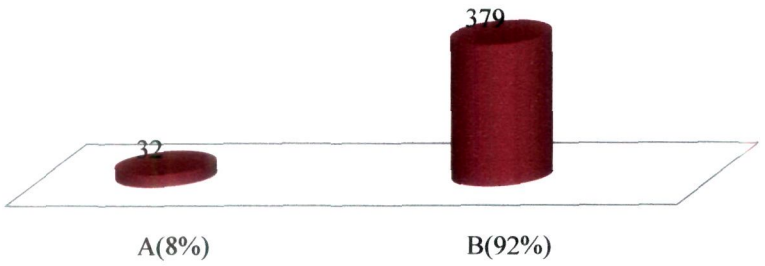
would sell only if the price of the investment is above the price at which they had made the purchase. To study this phenomenon, investors were asked as to who would be more upset if the price of the share fell immediately-

A: one who had purchased the stock at a price lower than the current price?

B: one who had purchased the same share at a higher price than the current price?

People indicate that the investors who purchased the share at higher than the market price would be more upset and are more vulnerable to use purchase price as the reference point.

Figure-4.9
Purchase Price as Reference Point



The results suggest that investors use purchase price as the reference point for investment decisions. Figure 4.9 shows that nearly 92% of the retail investors indicated that if the share price falls suddenly, the person who had purchased the share at a higher price would be more upset.

Table-4.30: Analysis of Purchase price as Reference point with respect to Demographics

SN	Demographic Factors	Purchase price as the reference point for investment decision		
		Chi-Square (χ^2)	Df	Sig.
1	Gender	2.921	1	.087
2	Education	57.243	4	.000*
3	Income	43.204	3	.000*
4	Age	45.096	4	.000*
5	Occupation	21.622	4	.000*
6	Experience	45.369	4	.000*

The Chi-square (χ^2) test was carried out to study whether the affinity to use purchase price as the reference point significantly varies with investors' demographic variables like gender, education, income, age, occupation and experience and it is found (table-4.30) that 'investor's use purchase price as the reference point' is statistically almost similar with respect to their gender. While statistically significant differences are obtained for investor's 'purchase price as the reference point' with respect to the remaining demographic variables.

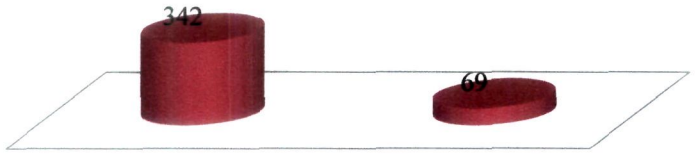
The above results resemble greatly with the findings of the present study (H_{03}) that investors who invest in a share usually use its purchase price as the reference point for holding on or selling their stocks. Their reaction to changes in price is thus relative to the initial purchase price. If the difference is high and positive, they contemplate selling it, but if the difference is negative, they continue to hold it in their portfolio in the hope of a price recovery in future. It could also imply that the investor tries to avoid the grief of loss by holding it for long, overlooking it or even forgetting it for some time.

Based on the above results, H_{033} which states that there is no significant variation in *purchase price perception* of the investors based on their demographic variables (education, income, age, occupation and experience) is not supported. However, this is supported across gender.

4.9.4 Regret/Loss Avoidance among Investors

Regret refers to investors' emotional reaction on making a mistake. Investors do not want to admit that they have made a bad investment decision and feel regret. To avoid the feeling of regret, they often make wrong decisions like they tend to hang on to the bad investments. They sell shares that have increased in value quicker and refrain themselves from selling shares that have decreased in value. Investors were asked which share they would like to sell if they are in need of money- the one which has increased in value or the one that has shown a decrease in value. Respondents showing an indication to sell the shares which have increased in value can be thus termed as the regret avoiders (Mittal & Vyas, 2009).

Figure-4.10
Regret/Loss Avoidance among Investors'



Increase in value(86%) Decreased in value(14%)

Figure-4.10 confirms that retail investors are loss/regret avoiders. Around 86% of the investors indicated that, if they need funds, they would prefer selling a share that has shown an increase in value.

Table-4.31: Analysis of Regret/Loss Avoidance with respect to Demographics

SN	Demographic Factors	Selling for the Sake of Liquidity		
		Chi-Square (χ^2)	Df	Sig.
1	Gender	1.425	1	.233
2	Education	43.470	4	.000*
3	Income	88.856	3	.000*
4	Age	95.312	4	.000*
5	Occupation	41.970	4	.000*
6	Experience	57.127	4	.000*

To study whether the regret/loss avoidance among retail investors, significantly varies with demographic factors like gender, education, income, age, occupation and experience, chi-square test was carried out. The result of the test in table-4.31 showed that investor's loss avoidance is statistically almost similar with respect to investor's gender (χ^2=1.425, sig. = .233).

The finding is also agrees with H_{03} of the present study. Investors avoid selling shares that have decreased in value. They keep hanging on to shares whose prices are falling, seeing the price falling further. If investors' need funds, they prefer to sell those shares that have shown an increase in value. It may be inferred that the investors want to avoid the feeling of regret. By not selling the shares whose prices are falling, investors want to avoid admitting that they have made a mistake and feel regret.

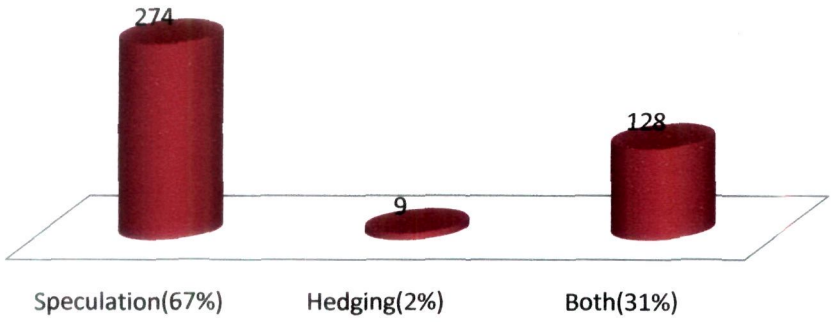
While it is also found that demographic variables like education, income, age, occupation and experience of the investors' shows statistically significant different values for their regret/loss avoidance in futures trading. This finding also agrees with H_{08}, H_{013}, H_{018}, H_{023} and H_{028} of the present study.

Based on the above results, H_{034} which states that there is no significant variation in *regret/loss avoidance* of the investors based on their demographic variables (gender, education, income, age, occupation and experience) is not supported. However, this is supported across gender.

4.9.5 Motives of Futures Trading

Futures trading exist primarily for the purpose of hedging. The main aim of trading in futures was to protect risk against some underlying assets like, commodities, equity shares, etc. But the scenario has changed, figure-4.11, shows that around 67% of the retail investors' trade in futures only for speculative purpose, whereas 31% are trading for both speculation and hedging and only 2% of the retail investors trading in futures for hedging purpose.

Figure-4.11
Motives of Futures Trading



The table 4.32 shows that investor's 'purpose for trade in futures' is statistically almost similar with respect to investor's gender (χ^2=1.662, sig. =.436). While statistically significant differences are found for investor's 'purpose of trade in futures' with respect to the demographic variables like education, income, age, occupation and experience.

Table-4.32: Analysis of Motives of Futures Trading with respect to Demographics

SN	Demographic Factors	Purpose to trade in Stock & Index Futures		
		Chi-Square (χ^2)	Df	Sig.
1	Gender	1.662	2	.436
2	Education	50.161	8	.000*
3	Income	128.900	6	.000*
4	Age	93.760	8	.000*
5	Occupation	55.601	8	.000*
6	Experience	83.121	8	.000*

It may be inferred that both males and females have similar kind of motives in futures trading. But variables like education, income, age, occupation and experience may make them different and rational in investment decision making. While the main aim (hedging) of introducing futures market is lost in the face of an overwhelming number of investors trading in futures for speculation instead of hedging. It may be one of the main causes of loss in futures trading for the retail investors.

Based on the above results, H_{035} which states that there is no significant variation in *futures trading motives* of the investors based on their demographic variables (education, income, age, occupation and experience) is not supported. However, this is supported across gender.

4.9.6 Margin problems in Futures Trading

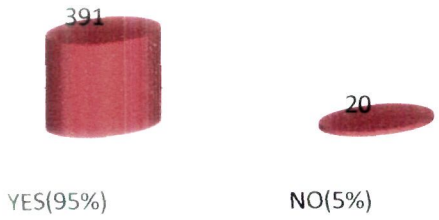
To enter into a futures contract, individuals need an initial margin[1] amount and then maintenance margin. Minimum levels for the initial and maintenance margins are set by the exchange. Individual brokers may require greater margins from their clients than those specified by the exchange. However, a broker does not require lower margins than those specified by the exchange (John C. Hull

[1] Initial margin: The basic aim of Initial margin is to cover the largest potential loss in one day. Both buyer and seller have to deposit margins. The initial margin is deposited before the opening of the position in the futures transaction.

2000). To study the problems due to maintenance margin, investors were asked two simple statements in yes/no format, shown in figure 4.12(a) & 4.12(b)

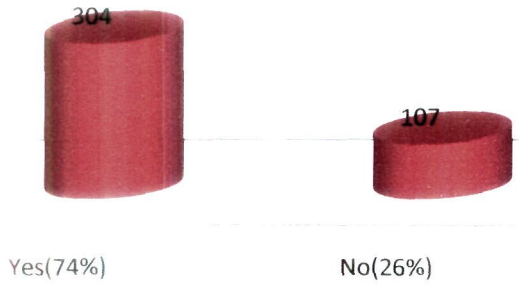
Retail investors incur loss in futures for maintenance margin (margin money)[2], around 95% of the respondents agree with this statement (shown in figure-4.12(a)).

Figure-4.12(a)
Loss in Futures due to Maintenance Margin



Retail investors face problems due to frequent change in margin percentage. around 74% of the respondents agree [figure-4.12(b)] that frequent change in margin percentage create problems to managing the margins in futures trading.

Figure-4.12(b)
Problem due to frequent changes in Margins %



It may be said that either retail investors don't have proper knowledge about margin requirement in futures trading or they trade beyond their limit. With limited funds, retail investors' trade in futures for speculative purposes. It could also be for the reason that the investors perhaps do not get required information of

[2] Margin money: The aim of collecting margin money from the client / broker is to minimize the risk of settlement default by either counterparty. The payment of margin ensures that the risk is limited to the previous day's price movement on each outstanding position. However, even this exposure is offset by the initial margin holdings.

margin money at the time of making a futures contract. This recurrent problem could underline some lacuna with the prescribed rules of futures market.

Table-4.33: Analysis of Margin problem with respect to Demographics

SN	Demographic Factors	Loss in Futures Trading due to maintenance margin			Problem due to frequent change in Margin %		
		χ^2	Df	Sig.	χ^2	Df	Sig.
1	Gender	5.160	1	.023*	9.816	1	.000*
2	Education	13.811	4	.008*	46.761	4	.000*
3	Income	74.063	3	.000*	143.344	3	.000*
4	Age	44.123	4	.000*	90.397	4	.000*
5	Occupation	20.502	4	.000*	69.379	4	.000*
6	Experience	72.895	4	.000*	87.797	4	.000*

To study whether investor's attitude towards margin requirement in futures trading vary significantly with demographic variables of the retail investor, chi-square test was carried out. From the table 4.33, the result of the test show that all the significant values are less than .05, which indicates that margin requirement vary significantly with demographic variables of the investors. Similar results are also obtained for investor's attitude regarding frequent change of margin percentage.

Based on the above results, H_{036} which states that there is no significant variation in *margin requirement perception* of the investors based on their demographic variables (gender, education, income, age, occupation and experience) is not supported.

4.9.7 Retail Investors' Choice in Futures Market

Retail investors are trading in futures with limited fund, so they are bound to trade in limited kind of futures products. Even if they want to explore their experiences with all kind of products available in the futures market, they are handicapped.

Figure-4.13(a) shows that 86% of the retail investors are trading in index futures and only 14% are engaged in individual stock futures. This may be due to limited amount of funds available to them, or they don't want to take more risk. Usually

the lot value, margin money required and risk associated in index futures is low relative to single stock futures. It could be one of the reasons for retail investors to attract more towards index futures trading as compared to single stock futures trading.

Figure- 4.13(a)
Preferred Futures Product

Figure-4.13(b) indicated that 86% of the retail investors agreed that there should be mini-stock futures, only 2% disagree and 12% of them neither agree nor disagree with mini-stock futures opinion. It may be inferred that majority of the retail investors want that there should be mini-stock futures. It may be inferred that most of the retail investors are interested in trading single stock futures. But due to their limited funds, they are unable to trade in single stock futures. Meanwhile mini-stock futures may fulfill this inconvenience of retail investors, because, in mini-stock futures the lot size (lot value) will be very small and easily manageable by the retail investors.

Figure-4.13(b)
Opinion regarding Mini Stock Futures

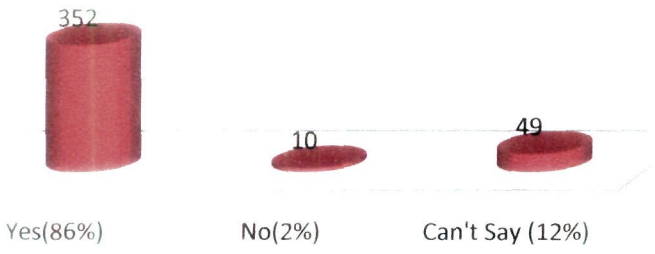


Table-4.34 shows that investor's 'preferred futures product' is statistically almost similar with respect to their gender. While statistically significant differences are obtained for investor's 'preferred futures product' with respect to the remaining

demographic variables. Similar results are also obtained for investor's attitude regarding 'opinion on mini stock futures'.

Table-4.34: Analysis of Futures products' Preference with respect to Demographics

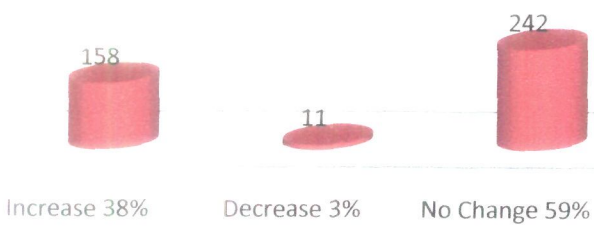
SN	Demographic Factors	Preferred Futures Product			Opinion on Mini Stock Futures		
		χ^2	Df	Sig.	χ^2	Df	Sig.
1	Gender	.331	1	.565	2.517	2	.284
2	Education	11.897	4	.018*	61.219	8	.000*
3	Income	14.748	3	.002*	141.550	6	.000*
4	Age	31.733	4	.000*	91.556	8	.000*
5	Occupation	34.293	4	.000*	124.387	8	.000*
6	Experience	18.450	4	.001*	74.005	8	.000*

Based on the above results, H_{037} which states that there is no significant variation *in the* investors' desire for mini futures based on their demographic variables (gender, education, income, age, occupation and experience) is not supported. However, this is supported across gender.

4.9.8 Trading Hours in Futures Market

Presently the Indian SIF trading starts at 9:00 AM and closes at 3:30 PM throughout Monday to Friday. It was inquired whether the investors are satisfied with the prescribed trading hours.

Figure- 4.14
Trading Hours



From the figure-4.14, it is shown that 38% of the retail investors want to increase the trading hours, while 3% want to decrease and 59% of the retail investors are

satisfied with the present trading hours of futures market. It may be inferred that most of the investors are satisfied with the present trading hours.

Table-4.35: Analysis of Trading Hour with respect to Demographics

SN	Demographic Factors	Trading Hours in Futures Market		
		χ^2	Df	Sig.
1	Gender	11.301	2	.004*
2	Education	24.192	8	.002*
3	Income	5.874	6	.437
4	Age	78.397	8	.000*
5	Occupation	14.779	8	.064
6	Experience	61.636	8	.000*

The results (Table-4.35) found that investor's 'opinion regarding trading hours' is statistically almost similar with respect to their income and occupation. While statistically significant differences are obtained for investor's 'opinion regarding trading hours' with respect to gender, education, age and experience. It may be inferred that more income group investors want to increases the trading hours so that they can trade more. Whereas, the nature of job and the timings of work are different for different occupational groups of the investors, hence some of the investors may not be comfortable with the present trading hours.

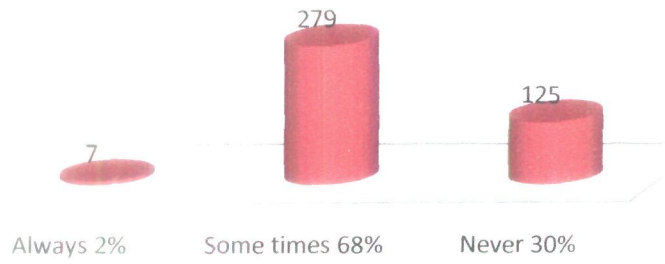
Based on the above results, H_{038} which states that there is no significant variation in *trading hour requirement* of the investors based on their demographic variables (gender, education, age, and experience) is not supported. However, this is supported across income and occupation.

4.9.9 Futures Trading with Options

Options (call/put) are derivative products through which investors can minimize the risk of futures trading by paying a nominal premium cost of the options when the investors trade in futures for speculative purpose. It has been discussed earlier that most of the retail investors trade in futures for speculative purpose only (figure-4.15). Futures markets of India being very volatile, it is quite risky to buy/sell open futures contracts. Figure 4.15 indicates that only 2% of retail

investors are trading in futures with covered options, 68% trade in futures without covered options and 30% of them trade with covered options (call Put) but only some times.

Figure- 4.15
Futures trade with Options



This may be one of the reasons to incur heavy loss in futures trading by the retail investors. It may also be inferred that investors may be unaware of real dynamics of futures and options or they may be overconfident and take biased decisions to save the premium required for options.

Table-4.36: Analysis of Trade in Futures with Options with respect to Demographics

SN	Demographic Factors	Trade in futures with options		
		χ^2	Df	Sig.
1	Gender	34.223	2	.000*
2	Education	32.671	8	.000*
3	Income	55.849	6	.000*
4	Age	52.410	8	.000*
5	Occupation	24.830	8	.002*
6	Experience	99.503	8	.000*

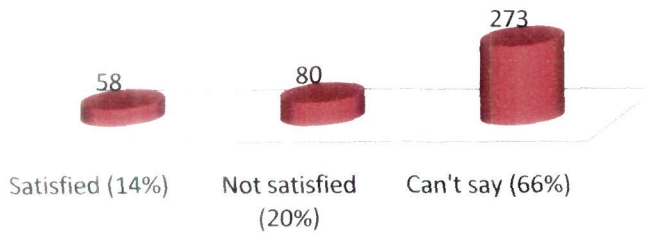
Statistically significant differences are obtained (table-4.36) for investor's 'trade in futures with options' with respect to their demographic variables.

Based on the above results, H_{039} which states that there is no significant variation in the investors' tendency of trading in futures with options based on their demographic variables (gender, education, income, age, occupation and experience) is not supported.

4.9.10 Retail Investors and SEBI

Indian financial futures markets are controlled by SEBI (Security Exchange Board of India). SEBI plays an important role for maintaining the investors' confidence and their interest in market. Figure-4.16 indicates that only 14% of the retail investors are satisfied with SEBI's functioning, while 20% are not satisfied and 66% of them are neither satisfied nor dissatisfied.

Figure-4.16
Satisfied with SEBI



It may be inferred that majority of the investors have lost their faith toward SEBI. It may be due to the day to day scandals, of different companies, instability of market, operator's nexus and their monopoly in fluctuation of the share price (Kumar & Raju, 2006). Also too much price manipulation, unfair practice of brokers, and corporate mismanagement and frauds are some main worries of investors and they feel insecure to trade in futures (Gupta & Jain, 2008).

Table-4.37: Analysis of Retail Investors and SEBI with respect to Demographics

SN	Demographic Factors	Satisfied with SEBI's rules/regulations		
		χ^2	Df	Sig.
1	Gender	26.705	2	.000*
2	Education	81.019	8	.000*
3	Income	66.711	6	.000*
4	Age	69.504	8	.000*
5	Occupation	54.528	8	.000*
6	Experience	48.018	8	.000*

The analysis of the statistical test of investors' satisfaction with SEBI's rules/regulations with their demographic variables, have been shown in table-4.37. The results reveal that statistically significant differences are obtained for 'investor's satisfaction with SEBI' with respect to their demographic variable.

Based on the above results, H_{040} which states that here is no significant variation in investors' *satisfaction with SEBI* based on their demographic variables (gender, education, income, age, occupation and experience) is not supported.

4.10 Chapter Summary

This chapter first reports the demographic profile of the respondents. It then examined the variations on different dimensions like investment horizon, risk attitude, personalization of loss, confidence and control in futures trading with respect to demographic variables. Retail investors' aptitude toward futures trading is also discussed. This chapter brings together the qualitative and quantitative findings and discusses the most significant ones by comparing and contrasting them with the relevant literature.

CHAPTER 5

PEST ANALYSIS OF INDIAN FUTURES MARKET

Chapter Overview

The goal of this chapter is to explore the opportunities and challenges with respect to futures trading in India. It spans a brief introduction of futures trading in India and the present scenario of political, economic, social and technological factors in the Indian futures market and finally draws the conclusions on the basis of above factors.

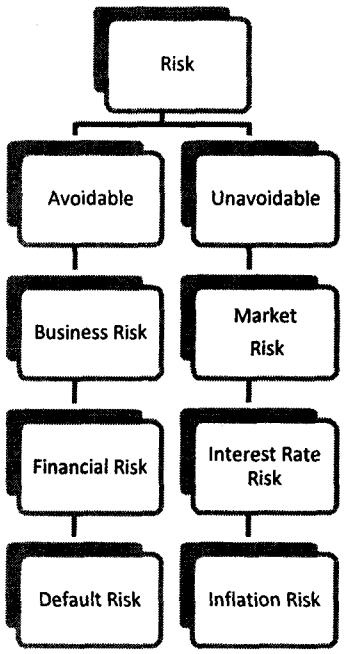
5.1 Introduction to Futures

A futures contract is a legally binding agreement to buy or sell a commodity or financial instrument sometime in the future at a price agreed upon at the time of the trade. While actual physical delivery of the underlying assets seldom takes place, futures contracts are nonetheless standardized according to delivery specifications, including the quality, quantity, and time and location. The only variable is price, which is discovered through the trading process.

One of the key benefits of trading in the futures markets is that it offers the trader *financial leverage*, which is the ability of a trader to control large Dollar/Rupee amounts of a commodity with a comparatively small amount of capital. As such, leverage magnifies both gains and losses in the futures market. Another key benefit of futures trading is *liquidity,* which is a characteristic of a market to absorb large transactions without a substantial change in the price. Liquid markets easily match a buyer with a seller, enabling traders to quickly transact their business at a fair price. Most of the futures markets are considered to be "transparent" because the order flow is open and fair. Everyone has an equal opportunity for the trade. When an order enters the marketplace, the order fills at the best price for the customer, regardless of the size of the order. With the advent of electronic trading, transparency has reached new heights as all transactions can be viewed online in real time. In a very general sense, transparency makes all market participants equal in terms of market access. While making an investment,

it is important to have confidence that the person on the other end of the trade will acknowledge and accept the transaction. Futures markets give traders this confidence through a clearing service provider system that guarantees the *integrity* of their trades. The brokerage charges are also very low when compared to trading in equities.

Figure-5.1: Risk Involved in Futures Market



Source: Developed by the Researcher/ Data collected from different source

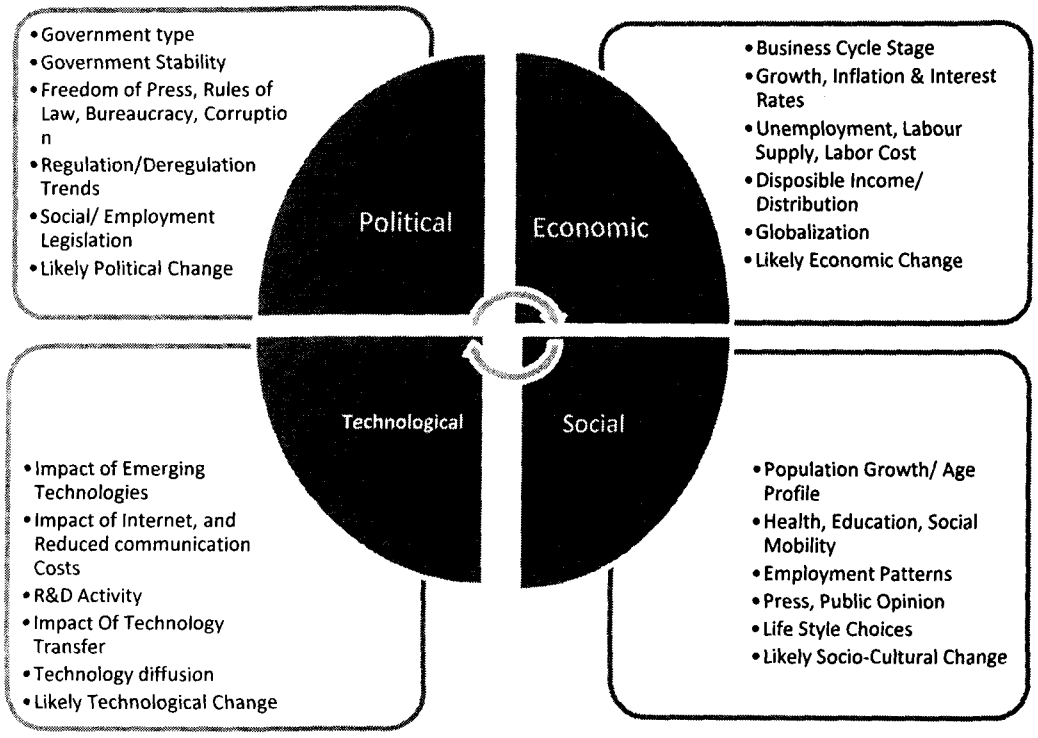
With lots of opportunities, there are some risks involved in futures trading (figure-5.1). Primarily among them is *price risk,* the risk of losses due to change in market prices. Price risk can increase further due to *market liquidity risk*, which arises when large positions in individual instruments or exposures reach more than a certain percentage of the market, instrument or issue. Such a large position could be potentially illiquid and not be capable of being replaced or hedged out at the current market value and as a result may be assumed to carry extra risk. *Counterparty risk* is the risk of loss due to a default of the counterparty in honouring its commitment in a transaction (credit risk). If the counterparty is situated in another country, this also involves country risk, which is the risk of the counterparty not honouring its commitment because of the restrictions imposed by the government.

Dealing risk is the sum total of all unsettled transactions due for all dates in future. If the counterparty goes bankrupt on any day, all unsettled transactions would have to be redone in the market at the current rates. The loss would be the difference between the original contract rate and the current rates. Dealing risk is therefore limited to only the movement in the prices and is measured as a percentage of the total exposure. *Settlement risk* is the risk of counterparty defaulting on the day of the settlement. The risk in this case would be 100% of the exposure if the corporate gives value before receiving value from the Counterparty. In addition the transaction would have to be redone at the current market rates. *Operational risk* is the risk that the organization may be exposed to financial loss either through human error, misjudgment, negligence or malpractice.

Apart from the above mentioned opportunities and challenges, futures market are also impacted with a lot of other reasons like political, economic, social and technological factors of the country. This may be studied in a systematic way using an innovative tool called PEST analysis.

5.2 PEST Analysis: A conceptual framework

Figure 5.2: A broader picture of PEST Analysis



Source: Developed by the researcher

PEST Analysis is a simple, useful and widely-used tool that helps to understand the "big picture" of **P**olitical, **E**conomic, **S**ocio-Cultural and **T**echnological environment that influence any industry. Such factors are usually beyond the company's control but can often influence the company. These factors always present themselves either as opportunities or threats to an industry.

As with any investment, the general economic condition of the country plays an important role in establishing the futures market sentiment. A booming economy is the basis for expectation of price rise. Futures traders may opt to go long in a flourishing economy to make profits when prices rise in future. Political stability or uncertainty can have a major impact on futures prices as these directly affect the economy of the country. The growth prospects for a particular sector of the economy should also be a consideration before making an investment in futures. Index and single stock futures are influenced by many of the same factors as the delivery based stock market. High interest rates, changes in taxation policies, market sentiment, GDP growth rate, etc. affect the prices of these futures. Single Stock Futures move largely in line with the current price movement of that stock in the market, with some premium or discount based on the expected direction that the stock price will move in.

Studies in the Indian market show that the volatility of the underlying market has declined after the introduction of derivatives trading (Gupta, 2002; and Nath, 2003). Theoretical studies on the effects of futures trading on the spot return volatility show that the effect is ambiguous. Most of the empirical studies suggest that the introduction of futures market has stabilized, or at least not destabilized, the underlying spot market. Kamara (1982) in his study finds that financial futures trading reduce the cost of entry of small traders into the financial markets. Maberly (1987) concluded that introducing new speculators into the markets improves risk sharing and increases liquidity, but can make cash prices more noisy and reduce net social welfare if these new speculators are less informed than traders already in the market.

Commodities form an important segment of the futures markets. Any factors affecting the supply or cost of production of a particular commodity affects its

futures contracts. For example, unfavorable weather can have a major effect on the futures of an agricultural commodity. Traders will expect supply to dry up in coming months causing the price to go up. Most of the traders will want to go long on the commodity, expecting price to rise. This will push the price up for futures of the commodity.

It is very important that investor examines its environment before making the decision to trade in futures market. This chapter provides an external environment analysis aimed at evaluating the emerging trends of *index futures* and *single stock futures* (simply considered as 'futures' in this study) in Indian futures market, so that investors can respond quickly to these change in the environment. A comprehensive model of PEST analysis is used to analyze the Political, Economic, Social and Technological environment. The analysis attempts to highlight the opportunities and threats that may emerge for futures trader to trade in Indian futures market.

5.3 Methodology

The main objective of this chapter is to identify the key factors affecting the futures market in India. For this purpose a framework of PEST is used, which divides the factors in four categories, namely Political, Economic, Social and Technological. The study considered following variables in each factor category.

Table- 5.1: Description of PEST Analysis

S.No.	Factor	Variables
1.	Political	Political Events
2.	Economic	Inflation, Interest rate, Exchange rate, Economic growth rate
3.	Social	Demographic variables
4.	Technological	Internet and banking system

The secondary data on each variable is collected from different sources. Then the data is analyzed mainly by forming consolidated tables and charts. The calculations are made mainly on financial data for drawing meaningful interpretations. Although all the factors do not affect the Indian futures market directly but some of them do influence it indirectly.

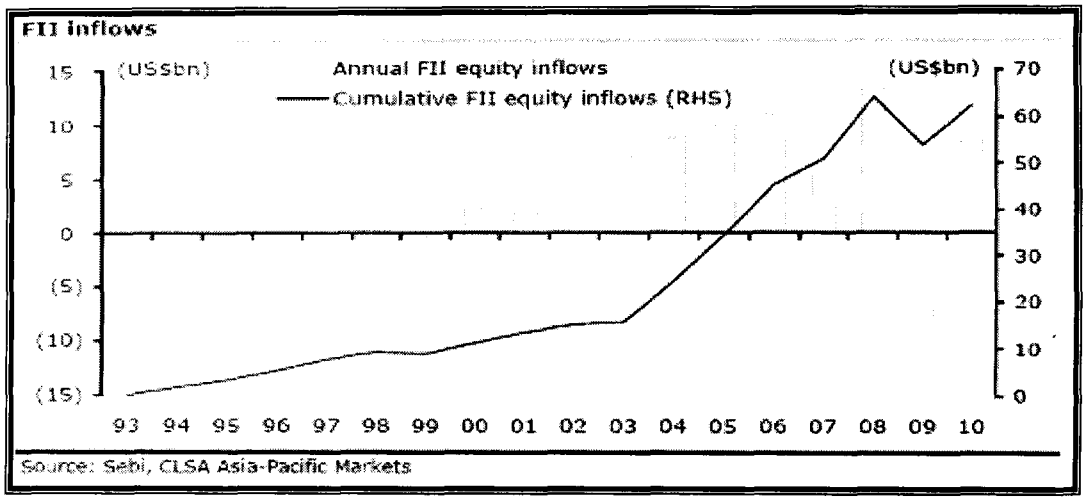
5.4 Analysis

5.4.1 Political Factors

Political factors have a huge influence on the regulation of the futures market in India. Since the market is relatively new, the government tries to watch it closely. Before 1991, Indian economy was conservative in nature but after globalization, more and more foreign investors have shown interest in different sectors of India. Very soon India emerged as a fast growing economy in the world.

The following figure-5.3 shows the Foreign Institutional Investors' (FII's) participation in India. The capital market of India is very vulnerable. India has been politically unstable in the past but it is somewhat politically stable now-a-days. Political events in the past have affected the stock prices due to which the trading volume and the stock returns have fluctuated (Nishat and Mustafa, 2002).

Figure-5.3: FII inflows in India



The political instability of India has a very strong impact on the capital market (table-5.2). The inflow and out flow of capital depends on the political and economic condition of the country. It also causes excessive fluctuation in stock market (Nishat, 2000). Sidra, *et al.* (2009) found that political events affect the stock price due to which the trading volume and stock return fluctuate positively or negatively as per the intensity of the event. The SENSEX and NIFTY goes up and down with any kind of small and big political news. The following table-5.2 shows some big rise and fall due to some political news or some policy

announcement by the government. The political stability of the country is very important for the performance and growth of capital market in India. The political balance of the country is the major factor in deciding the capital market of India. Index Futures are directly related to their corresponding indices. In case of Single Stock Futures, it is also directly correlated with market indices, but there may be some exceptional cases.

Table-5.2: Some big falls of Indian Share Market and their Causes

Year	Index	Reasons
October 24, 2008	The Sensex plunged by 1070.63 points (10.96 per cent) to close At 8,701.07. Nifty ended at 2,557.25,Down 13.11 per cent or 386 points.	On Friday, the Reserve Bank of India gave the markets its biggest blow as it left key interest rates unchanged and lowered the GDP target to 7.5-8% for 2008-09.
October 10, 2008	Sensex crashed by 801 points to close at a low of 10,528.	The crisis in the global markets, a fall in the rupee and poor IIP numbers led to the fall.
March 3, 2008	Sensex loses 900.84 points to close at 16,677.88	On frantic selling by funds, triggered by Deepening concern over United States recession and some Budget-related concerns.
January 25, 2008	.Sensex index soared 1,139.92 points to 18,361.66.	News that, India's central bank may cut a key short-term lending rate next week, dealers said. They said sentiment also improved on hopes possible further rate cuts by the US Federal Reserve and a fiscal stimulus package would help prevent the US from slipping into a recession.
January 21, 2008	Sensex saw its loss of 1,408 points at the end of the session on Monday. The Sensex recovered to close at 17,605.40 after it tumbled to the day's low of 16,963.96.	On high volatility as investors panicked following weak global cues amid fears of the US recession.
January 22, 2008	Sensex closed at a loss of 875 points at 16,730. Nifty closed at 4,899 at a loss of 310 points.	Weak global cues amid fears of the US recession.
October 17, 2007	Sensex plunged by 1,743 points. The Sensex hit a low of 17,307.90.	SEBI proposal to tighten the rules for purchase of shares and bonds in Indian companies through the participatory note (PN) route.
April 2, 2007	The Sensex lost 617 points (4.7%) and closed at 12,455.	Reserve Bank of India decision to hike the cash reserve ratio (CRR) and repo rate (RR).
May 18, 2006	The Sensex registered a fall of points (6.76 per cent) to close at 11,391	Government was planning to enhance the tax liabilities for foreign institutional investors, who have poured huge money into domestic trading ring.
May 17, 2004	Sensex dropped by 565 points to close at 4,505	The NDA out of power and the Left parties, part of the UPA coalition government
April 28, 1992	The Sensex registered a fall of 570 points (12.77 %) to close at 3,870	Harshad Mehta securities scam.

Source: Developed by the Researcher

Foreign Institutional Investor's (FII's) are the most important part of Indian futures market. From the figure-5.3, it is shown that their participation is increasing continuously which improves trading volume and liquidity in the market. But no one knows when their FIIs' sentiments change, and withdraw money from the market. One of the big reasons of Indian markets' unexpected fluctuation is thus FIIs only.

Table-5.3 shows the impact of Lok Sabha elections on market return which is an indication of the market strength and hence signifies the impact of the election on Index futures. This table shows the variation of market return one year before the election (pre election) and one year after the election (post election). The table shows that there is a positive variation of market return before and after the election. However some times (general election of 1996 and 1998) this trend of market return is in the opposite direction. This indicates that there may be some latent factors which affect the index futures return.

Table-5.3: Market Return Volatility: Pre and Post Election period

Year	%Return before election			% Return after election		
	1 Month	3 Month	12 Month	3 Month	6 Month	12 Month
1984	4.8	4.4	3.8	29.4	68	92.9
1989	-3.9	0.2	11.9	-2.3	13.1	90.8
1991	0	11.7	8.9	44	42.1	142.8
1996	11.8	33.2	6.7	-9.2	-18.9	-1.5
1998	2	-2	14.9	14	-14.5	-3.3
1999	2.9	16.7	-4.5	6.5	6.4	-13
2004	-13.4	9	-10.7	-5.8	6.7	16.7
2009	-2.84	-19.69	39.33	24.76	37.51	41.46

Source: Developed by the Researcher

According to Campbell, Grossman and Wang (1993), the fluctuation in trading activity is not only explained by publicly available information but also by non-information trade due to events, short selling, and insider traders. These factors are exogenous to the general price behavior in stock market.

5.4.2 Economic Factors

The economic measures taken by the government of India have a very strong relationship with the capital markets. The announcement of economic policies by the government in the annual budget gets reflected in the conduct and mood of the capital market. If the policies are supportive to the companies then the capital market takes it positively by moving up and if there is any policy that is not supportive then it tends to bring the capital market down. The economic factors which have more influence on futures market are as Economic growth, Inflation rate, Exchange rates and Interest rates.

Table-5.4: Growth pattern of Indian Economy Over the Years

Economic Indicators	1950-51	1960-61	1970-71	1980-81	1990-91	2000-01	2005-06	2006-07	2007-08	2008-09
GDP at factor cost: at current prices Rs. cr.	9719	16512	42981	132520	515032	1925017	3402316	3941865	4540987	5228650Q
GDP at factor cost: at constant prices Rs. cr.	224786	329825	474131	641921	1083572	1864300	3249130	3564627	3893457	4154973Q
Per capita Net National Product at constant prices Rs.	5708	7121	8091	8594	11535	16172	25969	28074	30316	31821Q
Gross Domestic Capital Formation as percentage of GDP at current market prices	8.4	14.0	15.1	19.9	26.0	24.3	34.3	35.5	37.7	34.9
Gross domestic **savings as percentage of GDP** current market prices	8.6	11.2	14.2	18.5	22.8	23.7	33.1	34.4	36.4	32.5
Index of agricultural production (Base: triennium ending 1981-82)	46.2	68.8	85.9	102.1	148.4	165.7	191.9	200.7	207.1	185.6
Index of industrial production. (Base:1993-94=100)	7.9b	15.6	28.1	43.1	91.6	162.6	221.5	247.1	268.0	275.4
Wholesale Price Index average (Base 1993-94=100)	6.8	7.9	14.3	36.8	73.7	155.7	195.6	206.2	215.8	233.9
Output Food grains (million tons)	50.8	82.0	108.4	129.6	176.4	196.8	208.6	217.3	230.8	233.9
Exports Rs. crore	606	642	1535	6711	32553	203571	456418	571779	655864	840755
Imports Rs. crore	608	1122	1634	12549	43198	230873	660409	840506	012312	1374436

- Source: Compiled from Economic Survey- 2009-10
- Q Quick estimates.
- b Relates to the calendar year 1950.
- Note: Data on GDP at factor cost at constant prices and per capita Net National Product at constant prices relates to 1999-2000 prices upto 2000-01.
- From 2005-06 onwards, data are based on new series (2004-05) prices.

Economic Growth

The economic factors in India are improving continuously. The GDP (Gross Domestic Products), the GDP- per Capita, the GDP- real growth rate and also other economic factors have been shown in the table-5.4, which indicates a tremendous economic growth story. By going through the data it may be inferred that the GDP numbers influence the Indian futures market in a positive way. It builds the confidence of the FIIs as well as domestic investors towards the Indian futures market.

Inflation Rate

The inflation rate (table-5.5) in India was last reported at 9.96 percent in December of 2010. From 1969 until 2010, the average inflation rate in India was 7.99 percent reaching an historical high of 34.68 percent in September 1974 and a record low of -11.31 percent in May 1976.

Table-5.5: Monthly average Inflation Rate chart (%)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	16.22	14.86	14.86	13.33	13.91	13.73	11.25	9.88	9.82	9.70	9.87	9.96
2009	10.45	9.63	8.03	8.70	8.63	9.29	11.89	11.72	11.64	11.49	13.51	14.97
2008	5.51	5.47	7.87	7.81	7.75	7.69	8.33	9.02	9.77	10.45	10.45	9.70

Source: http://www.tradingeconomics.com/Economics/Inflation, Retrieved on 02-12-2010

* Note: Inflation rate refers to a general rise in prices measured against a standard level of purchasing power. The most well known measures of Inflation are the CPI which measures consumer prices and the GDP deflator, which measures inflation in the whole of the domestic economy.

In the present scenario, the inflation rate of India is becoming a matter of concern which affects the savings of the investors and ultimately influences the futures market trade. To control the inflation RBI & government, frequently apply their tolls (Credit reserve ratio, Bank rate, Interest rate, etc.) to control the inflation which creates uncertainty in capital market and investors avoid trading in futures. Most of the companies take loan from banks; so if interest rates will increase, the profit of the companies will decrease whereas people will avoid taking home loan, car loan etc. and ultimately it will affect the growth of companies. Apart from

this, if the interest rate increases - people prefer to put their money in fixed deposits rather than share markets. Ultimately the liquidity as well as the trading volume decreases in futures market. It may be thus, implied that the present rising inflation is not favourable for the Indian futures market.

Interest Rate

The benchmark interest rate (reverse repo) in India was last reported at 5.25 percent in December 2010. In India, interest rate decisions are taken by the Reserve Bank of India's Central Board of Directors. The official interest rate is the benchmark repurchase rate. From 2000 to 2010, India's average interest rate was 5.82 percent reaching an historical high of 14.50 percent in August 2000 and a record low of 3.25 percent in April 2009. To control the inflation RBI keeps changing the interest rate and as a result, too much fluctuation is being shown in futures prices. Ultimately it becomes difficult for the retail investors to manage their futures contracts. Fluctuations give opportunities also but only to few experienced and large investors, whereas small retail investors usually lose their money in uncertain market fluctuations.

Table 5.6 shows that Reserve Bank of India (RBI) has been frequently tempering with the interest rate with an inclination towards rise. Such continuous change of interest rate is a matter of concern for Indian futures market.

Table-5.6: Monthly average Interest Rate chart (%)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	3.25	3.25	3.38	3.63	3.75	3.75	4.08	4.50	5.00	5.25	5.25	5.25
2009	4.50	4.00	3.75	3.38	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
2008	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	5.50

http://www.tradingeconomics.com/Economics/Interest, Retrieved 02-12-2010

Exchange Rate

Indian Rupee per US Dollar exchange rate depreciated 3.26 percent during the last 12 months. From 1973 until 2010 the USD/INR exchange averaged 29.47 reaching an historical high of 51.97 in March of 2009 and a record low of 7.19 in

March of 1973. Table-5.7 shows that the Indian currency is improving against US Dollar which is healthy for the Indian economy.

It may be inferred that GDP and exchange rate creates a robust atmosphere for the Indian futures market while inflation rate and interest rate are a matter of concern for the same.

Table-5.7: Monthly average Indian Rupee per US Dollar rate chart

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	5.96	46.35	45.48	44.48	45.82	46.58	46.84	46.37	45.04	44.42	45.34	45.36
2009	8.87	49.31	51.25	50.10	48.52	47.79	48.45	48.33	48.45	46.72	46.57	46.61
2008	9.37	39.76	40.33	40.03	42.12	42.85	42.84	43.07	45.52	48.67	48.99	48.68

http://www.tradingeconomics.com/Economics/Currency.aspx, Retrieved 02-12-2010

5.4.3 Social Factors

India is a country of social diversities having different cultures, sub-cultures, languages, customs, religions, castes, etc. With more than one billion inhabitants, India ranks second only to China among the world's most populous countries. Its people are culturally diverse, and religion plays an important role in the life of its people. According to Census-2001 about 80.5% of the Indians practice Hinduism, a religion that originated in India. Another 13.4% of the population is Muslims. India also has Christians (2.3%), Sikhs (2%), Buddhists (0.8%), Jains (0.4%), etc.

Around 45% of the Indian population belongs to the age group 25- 65 years (2009 estimation). While it is found that investors starts trading at the age of around 25 years and continue till retirements (63 presently).

The majority of Hindu population worships Lakshmi (The Goddess of Wealth) and thus people try their luck at every possible opportunity of making more money. During the Festival of Diwali gambling is considered to be auspicious. It can be said without doubt that more people are willing to try out new avenues of money making even though Muslims treat betting, speculation (like futures trading) and interest bearing instruments as forbidden by Islam, and mostly try to keep out of them.

Total Population: 1,147,995,904 (2008 estimate)

Age structure: 0-14 years: 31.5%; 15-64 years: 63.3%; 65 years and over: 5.2% (2008 estimate).

Sex Ratio: At birth: 1.12 male(s)/female; Under 15: 1.10 male(s)/female; 15-64 years: 1.06; male(s)/female (2008 estimate).

Population growth rate: 1.578%; Birth rate: 22.22 births/1,000 population; Death rate: 6.4 deaths/1,000 population (2008 estimate).

Table-5.8: Demographic pattern of India Over the Years

Social Indicators	**1950-51**	**1960-61**	**1970-71**	**1980-81**	**1990-91**	**2000-01**	**2005-06**	**2006-07**	**2007-08**	**2008-09**
Population (Million)	359.0	434.0	541.0	679.0	839.0	1019	1106	1122	1138	1154
Birth Rate (per 1000)	39.9	41.7	36.9	33.9	29.5	25.4	23.5	23.8	23.5	22.8
Death Rate (per 1000)	27.4	22.8	14.9	12.5	9.8	8.4	7.5	7.6	7.4	7.4
Education: Literacy Rate (%)	18.3	28.3	34.4	43.6	52.2	64.8	67.6	NA	NA	NA
(a) Male	27.2	40.4	46.0	56.4	64.1	75.3	NA	NA	NA	NA
(b) Female	8.9	15.4	22.0	29.8	39.3	53.7	NA	NA	NA	NA
Gross domestic savings as % of GDP at current market prices	8.6	11.2	14.2	18.5	22.8	23.7	33.1	34.4	36.4	32.5

- Source: Compiled from Economic Survey- 2009-10
- NA: Not Available.
- Note: Data on GDP at factor cost at constant prices and per capita Net National Product at constant prices relates to 1999-2000 prices upto 2000-01. From 2005-06 onwards, data are based on new series (2004-05) prices.

The futures market is not directly affected by the social factors. However, it does not mean that social factors are not important to the futures market. In 1991, literacy rate was 52.2% whereas in 2006 it reached to 67.6%, similarly the gross domestic saving in 1991 was 22.8 and in 2009 it goes up to 32.5; these facts underline a continuous and healthy growth (table-5.8). These factors directly or indirectly influence futures market. For example, an improvement in the education of people is likely to increase their employability. This in turn, is likely

to increase their income and ultimately their savings. These savings may be directly or indirectly diverted to the futures market and as a result liquidity and turnover of futures market is likely to increase.

With improvement in education of both males and females, Indian market is open to a lot more participation. Although the burgeoning population does pose a challenge; but perhaps that too can be managed by imparting education and creating opportunities for employment. It may be concluded thus, that literacy rate and saving per-capita of Indians are increasing which directly or indirectly will contribute to the growth of Indian futures market.

5.4.4 Technological Factors

Internet Trading

The advancement of information and communication technology is changing the competitive environment in the futures market. The internet is an absolutely revolutionary concept in the financial services area. The new trading method through internet has become a required distribution channel, pushing the investors away from the traditional one. The advantages of trading via internet are quite visible. The cost of making a trade has plummeted. Many on-line Indian brokerage firms charge as low as 0.01 % of the futures transactions in the form of brokerage and the competition is still very intense among the brokerage houses. They are charging low brokerage to attract more investors. Electronic trading system is helping a lot to the futures traders. They can obtain real-time quotes, place orders, and receive related market data, news, and services anytime anywhere. These developments bring futures trading to every doorstep, easily available on a click.

Trading through electronic media gives investors full control to their futures trading activities. They make their own trading strategy and take all decisions. For investors who are not seeking personal investment advice, online trading can be very useful. If one can trade without the help of a professional broker, browser based trading is an ideal trading tool for them. On-line investors are using the internet to their advantage, and the entire structure of futures market is changing as a result.

It is seen that there is a fast growth in the field of information technology and it is expanding to remote areas too. Brokerage firms are expanding their business in most of geographical areas of India and investors are coming to them. Moreover through electronic media, brokers are providing extraordinary facilities to their investors. Reduced brokerage charges, fast order-processing time and improved information flow attract futures investors. However, Internet trading has some disadvantages too. The untimely power cuts may disrupt trading, especially in the Indian context. Rapid growth of internet trading requires the companies to constantly implement changes to meet the customers' growing needs. Spurred by personal whims or selfishness, inappropriate management of the internet system may lead to huge costs and system failure.

However trading through internet and cellular phones is an additional support to the Indian futures markets. India is growing fast in the field of information technology which is a good sign for Indian futures markets as well.

Integration of Banking System with Brokerage Services

It has become very easy to transfer money around the world with the development of communication technology and advanced banking systems. In the past, it used to take days to move money around the country. Nowadays, people can transfer money to their account within minutes.

As far as futures trading is concerned, the traders are required to open a trading account to their brokers. All transactions in futures trading are done through this account. Traders are required very quick access of their trading account to maintain different types of margins in futures trading. Through internet, investors directly transfer money from their bank account to their trading account within minutes. Apart from this, some banks like ICICI bank provide facilities of direct link between investors' trading account and bank account which makes the futures trading more manageable. Investors can access to their bank accounts through their cellular phones too. The technology of 3G is also boosting the internet facilities with lots of features which ultimately help the Indian futures markets.

5.4 Issues in the Indian Futures Market

However, there are several issues which are hampering the flowering of Indian economy and also the futures market in turn. The major ones are mentioned hereby:

5.5.1 Infrastructure

India's low spending on power, construction and transportation along with bureaucratic inefficiencies, urban-bias prevent India from sustaining higher growth rates. For example, in the major part of India, only 44% of rural households have access to electricity which further deteriorates because of power-thefts, public sector corruption and other causes. These impediments in infrastructure take toll upon the smooth running of futures trade.

5.5.2 Education

In spite of the right to education, free education to all children, huge progress in terms of increasing primary education attendance rate and expanding literacy to approximately two thirds of the population; a lot is still missing. However, the literacy rate of 65% is still lower than the worldwide average and the country suffers from a high dropout rate.

Laws: India is ranked 133th on the Ease of Doing Business Index (2010), far behind countries like China , Pakistan, and Nigeria. The Indian Constitution provides protection of child labor, slavery, equality of opportunities and forced labor etc. in the form of fundamental rights. But the implementation of provisions cited above is a matter of concern. There is a need to design better labor regulations to attract more labor- intensive investment. This could create more jobs for India's unemployed millions and those trapped in poor quality jobs - *World Bank: India Country Overview 2008.*

Apart from this, the tax laws of Indian futures markets are not clear. Very frequently SEBI is imposing new rules for FIIs as well as domestic investors also face problems with day to day rules and bylaws.

5.5.3 Economic Disparities

A basic problem facing India's economy is the sharp and growing regional variations among India's different states and territories in terms of per capita income, poverty, availability of infrastructure and socio-economic development. Reforming cumbersome regulatory procedures, improving rural connectivity, establishing law and order are essential to create a stable platform for natural resource investment. It could balance business opportunities, reinforcing the futures market.

5.5.4 Agriculture

Though 65% of India still lives in villages, but agriculture has not received the right kind of attention yet. Current agricultural practices are neither economically nor environmentally sustainable, causing little improvement in yields for many agricultural commodities. Dishevelled roads, poor market infrastructure, and excessive regulation make farmers' access to markets difficult.

5.5.5 Corruption

Corruption and frauds have been some of the pervasive problems affecting India. It is very difficult to completely eliminate fraud from the banking and financial system (Kant, 2008). The 2010 report by Transparency International ranks India at 87^{th} place and states that significant setbacks were made by India in reducing corruption. Such activities are influencing a lot to investors' confidence. FIIs hesitate to invest their money in countries like India.

5.6 Conclusions

The Indian government's efforts are directed towards the establishment of a free, fair, transparent and fully informed market with help of the Futures market, so that futures prices are truly determined by the forces of demand and supply. In the long term, the continuing rapid growth of economy in India creates a huge potential for futures market. The entry of the foreign investment firms will help the development of the market as the trading will be very active when there are a large number of participants. Social factors suggest that there will be increasing

savings power, improved education and employment scenario in India which is likely to bring domestic investors towards futures market. Moreover, the internet trading system is also changing the competitive environment of the futures market industry since more and more investors are adopting the low cost and convenient trading system associated with it. The advanced banking system is making the futures business more manageable. Although the Indian market has been quite volatile, retail and small investors should adopt some pre-determined strategies to be safe against the unexpected turns of the market. Mr.P.Chidambaram (Honorable Finance minister of India, 2008) said that retail investors should gain knowledge before entering into futures market. "The risks could be very high and so retail investors should not jump into it unprepared."

With an improving agriculture, widening scope of education, a balanced economy, friendlier infrastructure, vividly sketched out laws unstained by any kind of corruption will create the right climate for swift growth of the futures' market. The PEST analysis shows that most of the factors considered are indeed going in favour of India's futures market.

5.7 Chapter Summary

The chapter tried to explore the opportunities and challenges of futures trading in India. It spanned a brief introduction of futures trading in India and the present scenario of political, economic, social and technological factors in the Indian futures market. It traced how factors of political stability, inflation rate, interest and exchange rate along with the changing infrastructure bear a strong impression upon the Indian futures market. Finally, it drew the conclusions on the basis of the above factors.

Table-5.9: An Overview of PEST Analysis

Political Factors		Economic Factors	
Favourable factors	**Un-favourable factors**	**Favourable factors**	**Un-favourable factors**
Government Type: Majority of the parliament members are from one party (Congress (I)) though it is a coalition government.	Bureaucracy: Due to monopoly of Indian bureaucratic system investors are losing their confidence to invest their hard earn money in markets.	GDP: Indian economy is growing around 9%, which could be say a fast growing economy.	Inflation: It is a matter of concern. RBI is applying their tools but even though inflation of India is not coming down.
Government Stability: Now politically India is almost stable. Most of the govt. runs full terms.	Corruption: corruption is rampant in every sphere, makes working difficult. Investors are losing their faith in the market.	Indian currency is improving against US and some other countries which helps India economy.	Interest Rates: Interest rate is fluctuating toward upward, which influences the market sentiments badly.
Employment: the improving employment status begets more money to be invested.	Likely political Change: democratic system is always under threat of sudden political change.	India becomes an open economy and is inviting FDI's and FII's to increase their participation.	
Technological Factors		**Social Factors**	
Favourable factors	**Un-favourable factors**	**Favourable factors**	**Un-favourable factors**
Impact of Emerging Technologies: Indian is adapting the latest technology in all fields	Electricity: Due to shortage electricity brokers are not expanding their business in semi-urban and ruler areas.	Around 45% of the Indian population is in the age group of 25-65 years. Which indicate towards a large number of potential investors.	Population wise India is a second largest country in the world which effects employment rate, health, etc.
Internet helps a lot Indian futures market. Investors are trading very fast with minimum trading cost.	Fear of system failure: All the record are in electronic form, investors are hardly have any evidence of their trading as well as bank accounts.	Education, employment pattern & Gross Domestic Saving of Indians are continuously improving which is a good sign of futures markets.	

CHAPTER 6

CONCLUSIONS AND DISCUSSIONS

Chapter Overview

The purpose of this chapter is to summarize and discuss the key findings of the study. The findings associated with respondents' demographic variables and its variation on investment dimensions, respondents' attitude towards futures trading as well as prospects of Indian futures markets have been summarized.

6.1 Findings related to Demographic Variables

The focus of this study is to ascertain the key dimensions of futures trading like investment horizon, risk attitude, personalization of loss, confidence and control and their variation with respect to investors' demographic variables like gender, education, income, age, occupation and experience were studied. The findings are as follows:

a) Investment Dimensions versus Gender

The present study shows that there is a significant variation of investment horizon with respect to investors' gender. The mean score of investment horizon for males are higher than that of the females. It may be inferred that male investors trade in futures with predetermined objectives and goals. Whereas females keep changing their decisions regarding their investment horizon because they may rely on others (analysts, brokers, friends etc.) for investment related information and suggestions. The above findings are also supported by Shylajan & Marathe (2006) and Chen & Tsai (2010) that males are more investment horizon oriented than females.

The present study also shows that males have more risk taking attitude than females in futures trading. Studies like Dwyer *et al.* (2002), Hanna & Lindamood (2005), Jaffar and Namasivayan (2006); Mittal & Vyas (2007) that males are more interested than females to invest their money in risky assets, and the investment

choice depends on and is affected by the demographic variables of the investors. Bajtelsmit & Bernasek (1996), Palsson (1996), Jianakoplos & Bernasek (1998), Powell & Ansic (1997), Bajtelsmit *et al.* (1999) and Grable (2000) find support for the notion that females have a lower preference for risk than males. Grable & Joo (1999) and Hanna *et al.* (1998), however, find that gender is not significant in predicting financial risk tolerance.

Table-6.1: Summary of Hypotheses results based on Dimensions of Investment versus Gender

No.	Hypotheses	T-value	Sig.	Remark
H_{01}	There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to gender.	6.200	.000*	Not Supported
H_{02}	There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to gender.	8.090	.000*	Not Supported
H_{03}	There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to gender.	-.385	.701	Supported
H_{04}	There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to gender.	14.452	.000*	Not Supported
H_{05}	There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to gender.	9.098	.000*	Not Supported

While both males and females exhibit similar levels of regret in a loss making situation. It may imply that value of money is same for both the genders. While for the dimensions of confidence and control the results indicate that males have more confidence as well as control as compared to females, when they trade futures. Males are significantly more financially independent as well as more financially confident and secure as compared to females (Carpenter & Moore, 2008). The upbringing of males and females in the Indian families may also be considered to be an important factor influencing the confidence levels of the genders. The differences in attitude and achievement also affect female interaction

when working within groups. Females feel less confident than males and that could lead to their being less assertive as well (Miltol *et al.*, 2002).

The above findings are also supported by Churaman (1988), Lytton & Grable (1997), Prince (1993) investigating differences in the level of financial confidence among males and females report that males tend to be more confident than females.

b) Investment Dimensions versus Educational Qualification

The present study shows that educationally more qualified investors are more rational, they have predetermined investment horizon and more risk taking attitude in futures trading.

Table 6.2: Summary of Hypotheses results based on Dimensions of Investment versus Education

No.	Hypotheses	F	Sig.	Remark
H_{06}	There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to educational qualification.	38.169	.000*	Not Supported
H_{07}	There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to educational qualification.	28.233	.000*	Not Supported
H_{08}	There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to educational qualification.	22.377	.000*	Not Supported
H_{09}	There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to educational qualification.	16.942	.000*	Not Supported
H_{010}	There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to educational qualification.	28.983	.000*	Not Supported

The present study agrees with findings of Cohn *et al.* (1975), Schooley and Worden (1996), Shaw (1996), Grable (2000) and Veld and Veld-Merkoulova

(2008) that increasing educational level attainment is associated with increased level of risk tolerance. They found that individual investors with university or college education are more likely to invest in risky assets.

Also Baker & Haslem (1974), Haliassos & Bertaut (1995) and Sung & Hanna (1996) showed that the level of education has a direct impact on a person's ability to accept risk. Specifically attainment of higher level of education is felt to increase a person's ability to evaluate risk and are therefore considered to be positively related to higher financial risk tolerance.

The study found that less educationally qualified investors regret more as compared to educationally more qualified investors when there is a loss making situation. The present study is in agreement with Shefrin & Statman (1995) that education influences investors' aversion to realized losses, as the education of the investors' increases, their regret in loss making situation decrease.

The present study also found that investors who are more educationally qualified are more confident and have more control in investment decision making as compared to less educationally qualified investors. The present study somewhat agrees with Hira (1987), Xiao (1995), Mittal and Vyas (2007) that educational qualification of investors influence different dimensions of investment.

c) Investment Dimensions versus Income

The present study shows that investors who have more income, trade in futures with a more predetermined investment horizon as compared to the low income groups.

Similarly, the risk taking attitude of high income group investors is high when compared with the low income groups, who might be scared to take risk in futures trading. It could be due to their hard earned limited income. The present study is in agreement with Haliassos & Bertaur (1995) that income is significantly and positively related to the probability of holding risky assets. Individuals with higher net worth were more likely to participate in the stock market. Studies like Friedman (1974), Cohn *et al.* (1975), Blume (1978), Riley & Chow (1992), Grable & Lytton (1998), Schooley & Worden (1996) and Shaw (1996) also

support the above findings that higher levels of income and wealth have been found to be associated with higher levels of risk tolerance.

Table 6.3: Summary of Hypotheses results based on Dimensions of Investment versus Income

No.	Hypotheses	F	Sig.	Remark
H_{011}	There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to income.	151.364	.000*	Not Supported
H_{012}	There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to income.	90.653	.000*	Not Supported
H_{013}	There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to income.	49.000	.000*	Not Supported
H_{014}	There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to income.	147.597	.000*	Not Supported
H_{015}	There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to income.	90.148	.000*	Not Supported

While in the case of personalization of loss, it is found that investors who have low income regret more as compared to the wealthy investors in a loss making situation. The present study almost agrees with Shefrin & Statman (1995) that income influences investors' aversion to realized losses.

The results also show that when the income of investors increases, they take their decisions of futures trading with more confidence and control as compared to investors who have low income. The results of the present study agree closely with Xiao (1995), Rajarajan (2003), Manish and Vyas (2007) that income of investor's influences their investment decision making.

d) Investment Dimensions versus Age

The present study shows that investors who are between 36 to 55 years of age trade in futures with a more specific predetermined investment horizon as compared to the investors who are below 36 years and above 55 years of age.

With the growing age of the investors, their risk taking attitude increases; but after a certain level of age (above 55 years), it starts decreasing in futures trading. The present study agrees closely with Wallach & Kogan (1961), McInish (1982), Morin & Suarez (1983) that younger investors have different attitudes toward financial decisions than elder ones. Although Bajtelsmit & VanDerhei (1997), Palsson (1996) and Sung & Hanna (1996a) found that risk tolerance decreases with age. They found that older individuals tend to be less risk tolerant than younger persons. While Grable & Joo (1999), Grable & Lytton, (1998) and Wang & Hanna (1997) argued that a negative relationship exists when testing the association between age and risk tolerance. The older investor is more likely to have low level of risk tolerance; it implies that with age increasing investors have a decreasing preference for investment on risky assets.

Table 6.4: Summary of Hypotheses results based on Dimensions of Investment versus Age

No.	Hypotheses	F	Sig.	Remark
H_{016}	There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to age.	36.351	.000*	Not Supported
H_{017}	There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to age.	24.142	.000*	Not Supported
H_{018}	There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to age.	13.370	.000*	Not Supported
H_{019}	There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to age.	47.456	.000*	Not Supported
H_{020}	There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to age.	29.307	.000*	Not Supported

In addition Bakshi & Chen (1994), Mclnish (1982), Morin & Suarez (1983), Grable (2000), Hallahan *et al.* (2003), Veld & Veld-Merkoulova (2008) and Frijns *et al.* (2008) showed that younger investor likely to have high level of risk tolerance; it means that younger investor has less preference for investment on riskless asset than the older ones.

Simultaneously with age, an investor's personalization of loss decreases; while at the time of retirement their regret of loss increases in a loss making situation. The present study agrees with Shefrin & Statman (1995) that age influences investors' aversion to realized losses.

The results also revealed that with age - investors' confidence as well as their control on futures trading increases and toward the age of retirement it remains almost same or inclined towards decreasing. It may be inferred that age have significant influence on investment decisions. The findings also agree with McInish, (1982); Morin & Suarez, (1983) and Palsson, (1996) have indicated that younger people have different attitudes toward financial decisions than older ones. The findings of the present study are also supported by the result of the studies conducted by Reley & Chow (1992) and Greenwood & Nagel, (2006) that the age of the retail investors exhibits significant influence on financial decision making.

e) Investment Dimensions versus Occupation

The present study shows that government job holders, private job holders and businessmen have more specific predetermined investment horizon as compared to the housewives and others. Risk taking attitude of investors also follow the same pattern. The findings of the study also agree with Grable (2000), Rajarajan (2003), Hallahan *et al.* (2003), Hallahan *et al.* (2004) and Veld & Veld-Merkoulova (2008) that occupation influences an individual's level of risk taking and risk-tolerance in portfolio choice.

Although the government jobs, businessmen and private jobs show less regret in personalization of loss as compared to housewives and others. The present study almost agrees with Jaffar & Namasivayan (2006), Verma (2008) that occupation influences the investors' behavior in their financial decision making.

Table 6.5: Summary of Hypotheses results based on Dimensions of Investment versus Occupation

No.	Hypotheses	F	Sig.	Remark
H_{021}	There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to occupation.	59.852	.000*	Not Supported
H_{022}	There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to occupation.	61.479	.000*	Not Supported
H_{023}	There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to occupation.	13.294	.000*	Not Supported
H_{024}	There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to occupation.	41.099	.000*	Not Supported
H_{025}	There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to occupation.	38.616	.000*	Not Supported

While government job holders, businessmen and private job holders show more confidence as well as control than housewives and others in futures trading. The present study also agrees with Hira (1987), Xiao (1995) and Rajarajan (2003) that occupation of the investors has significant effect on their financial decision making.

f) Investment Dimensions versus Experience

The present study shows that more experienced investors are more rational. They have predetermined investment horizon with a more risk taking attitude. The present study agrees with Barnwell (1987) that investors who are more experienced, are more likely to take risks in investing because they already have the experience of taking risks in their past wealth creation process. While Abraham (2007) argued that emotion in economic and financial decision-making is not to be suppressed or eschewed. It is to be viewed as a valuable tool that guide and influence even the most mature and experienced of traders.

Table 6.6: Summary of Hypotheses based on Dimensions of Investment versus Experience

No.	Hypotheses	F	Sig.	Remark
H_{026}	There is no significant variation in investment horizon as a dimension of retail investors' behavior in futures trading with respect to experience.	36.834	.000*	Not Supported
H_{027}	There is no significant variation in risk attitude as a dimension of retail investors' behavior in futures trading with respect to experience.	20.164	.000*	Not Supported
H_{028}	There is no significant variation in personalization of loss as a dimension of retail investors' behavior in futures trading with respect to experience.	23.933	.000*	Not Supported
H_{029}	There is no significant variation in confidence as a dimension of retail investors' behavior in futures trading with respect to experience.	38.377	.000*	Not Supported
H_{030}	There is no significant variation in control as a dimension of retail investors' behavior in futures trading with respect to experience.	68.705	.000*	Not Supported

The present study also shows that less experienced investors regret more as compared to more experienced investors in a loss making situation in futures trading. It is also found that investors who have more experience are more confident and have more control in investment decision making as compared to less experienced one. The findings of the study also agree with Tourani-Rad & Krikby (2005) that investors will be overconfident if they have past success, optimism, confidence in one's ability, investment experience and investment related knowledge. Whereas Barnea *et al.*, (2010) also found that experience of the investors is significantly influenced on their investment decision making. It may be inferred that investors' risk taking attitude, confidence and control in futures trading increases with experience.

The results also support the studies conducted by Rajarajan (2003), Greenwood & Nagel (2006) and Mittal & Vyas (2007) that experiences of investors influence their trading behavior.

It may be concluded that demographic variables show significant variations on investment dimensions of futures trading. Males show more predetermined investment horizon, risk taking attitude, confidence and control compared to females; and in the case of personalization of loss - females regret more than males in any loss making situation. Investors who are more qualified, wealthy and experienced show more predetermined investment horizon, risk taking attitude, control and confidence while they have less personalization of loss in futures trading. With age - investors' investment horizon, risk taking capacity, confidence and control increases but towards retirement, they all start decreasing in futures trading. The present study also shows that occupation of the investors has significant variations in investment dimensions.

6.2 Investors' Attitude towards Futures

This section presents the findings with respect to investors' attitude in futures trading. Self attribution bias, over reaction, purchase price as reference point, loss avoidance, motives of trading, futures trading and margin money along with futures products, trading time, futures trading with options, retail investors and SEBI, etc have been incorporated.

a) Self Attribution Bias of Retail Investor

The results show that retail investors are prone to self-attribution bias which causes a tendency among them to make wrong decisions. If the investors earn money in futures trading they consider themselves to be very knowledgeable and capable, similarly if the investors incur losses, they attribute it to bad luck. It is also found that there exist significant differences in investors' self attribution bias with respect to their demographic factors (gender, education, income, age, occupation and experience).

The present study agrees with Miller & Ross (1975) who also found that if the picked up stock price performs well, the investors take it as a confirmation of their

investing ability. But if the stock price falls, they cite the general condition of the economy or market as the reason for decline.

Table-6.7: Analysis of Self Attribution Bias with respect to Demographics

Hypothesis	Self attribution bias			Remarks
H_{031}: There is no significant variation in *self attribution bias* of the investors based on their demographic variables-	**Demographic Variables**	χ^2	**Sig.**	
	Gender	7.943	.005*	Not Supported
	Education	19.609	.001*	Not Supported
	Income	30.041	.000*	Not Supported
	Age	20.759	.000*	Not Supported
	Occupation	40.840	.000*	Not Supported
	Experience	79.936	.000*	Not Supported

People who attributed losses to 'bad luck' or other reasons for their wrong decisions can be categorized to have a high self-attribution bias (Mittal &Vyas 2009). Individuals tend to recall and relish their successes, while forgetting their defeats (Lander & Roth; Taylor & Brown, 1988) making them overconfident. While Bhandari & Deaves (2006) also found that if the stock price picked up do well, the investors take it as confirmation of their investing ability, but if the stock price falls, they cite the general condition of the economy or market as the reason for decline.

b) Overreaction of Retail Investor

The present study shows that retail investors overreact to any information related to financial markets and make wrong decisions. Almost all the demographic variables of the investors' are found to have significant variation with the dimension of overreaction, while both males and females overreact in the same manner in investment decision making situation. The present study agrees with Pavabutr (2002) and Mittal & Vyas (2009) who also found it as a common tendency of investors to overreact. It may be due to tendency to put more weight on the recent news, as compared to past data. People tend to be optimistic when the market goes up and pessimistic, if the market comes down. Investors may

overreact because they may not be having access to complete and accurate information.

Table-6.8: Analysis of Overreaction with respect to Demographics

Hypothesis	Investor's Overreaction			Remarks
H_{032}: There is no significant variation in *over-reaction* of the investors based on their demographic variables-	**Demographic Variables**	χ^2	**Sig.**	
	Gender	.542	.462	Supported
	Education	79.511	.000*	Not Supported
	Income	86.154	.000*	Not Supported
	Age	49.864	.000*	Not Supported
	Occupation	37.165	.000*	Not Supported
	Experience	72.172	.000*	Not Supported

Fine (2010) also argues that there is currently no scientific evidence for innate biological differences between men and women's minds, and that cultural and societal beliefs contribute to commonly perceived sex differences.

c) Purchase Price as Reference Point

One of the major findings of the study is that behavioral biases are observed in the investors trading behavior. They tend to use purchase price as the reference point and make decisions based on it. They would sell only if the price of the investment is above the price at which they had made the purchase. All the demographic variables of the investors' are found to have significant variation with the dimension of purchase price as reference point in investment decision making situation. The present study is in agreement with Kahneman & Riepe (1998), and Deanlebaron (1999) that investors take the decisions to hold a particular stock, based upon the difference between the current price and purchase price. Their reaction to changes in price is thus relative to the initial purchase price. If the difference is high and positive, they contemplate selling it, but if the difference is negative, they continue to hold it in their portfolio.

The above results resemble greatly with the studies of Kahneman & Riepe (1998) and Deanlebaron (1999) findings that investors who invest in a share usually use its purchase price as the reference point.

Table-6.9: Analysis of Purchase price as Reference point with respect to Demographics

Hypothesis	Purchase price as the reference point			Remarks
H_{033}: There is no significant variation in *purchase price perception* of the investors based on their demographic variables-	**Demographic Variables**	χ^2	**Sig.**	
	Gender	2.921	.087	Supported
	Education	57.243	.000*	Not Supported
	Income	43.204	.000*	Not Supported
	Age	45.096	.000*	Not Supported
	Occupation	21.622	.000*	Not Supported
	Experience	45.369	.000*	Not Supported

Their reaction to changes in price is thus relative to the initial purchase price. If the difference is high and positive, they contemplate selling it, but if the difference is negative, they continue to hold it in their portfolio in the hope of a price recovery in future. It could also imply that the investor tries to avoid the grief of loss by holding it for long, overlooking it or even forgetting it for some time.

d) Regret/Loss Avoidance among Investor

Regret refers to investors' emotional reaction at making a mistake. Present study found that investors do not want to admit that they have made a bad investment decision and feel regret. To avoid the feeling of regret, they take wrong decisions like they tend to hang on to the bad investments. They sell shares that have increased in value quicker and refrain themselves from selling shares that have decreased in value.

Table-6.10: Analysis of Regret/Loss Avoidance with respect to Demographics

Hypothesis	Selling for the Sake of Liquidity			Remarks
H_{034}: There is no significant variation in *regret/loss avoidance* of the investors based on their demographic variables-	**Demographic Variables**	χ^2	**Sig.**	
	Gender	1.425	.233	Supported
	Education	43.470	.000*	Not Supported
	Income	88.856	.000*	Not Supported
	Age	95.312	.000*	Not Supported
	Occupation	41.970	.000*	Not Supported
	Experience	57.127	.000*	Not Supported

Most of the demographic variables except gender show significant variation on regret/loss avoidance in futures trading. The present study agrees with the findings of Shiller (1997) which show investors avoid selling shares that have decreased in value. They keep hanging on to shares whose prices are falling, seeing the price falling further. Deanlebaron (1999) also found that if investors need funds, they prefer to sell those shares that have shown an increase in value. It may be inferred that the investors want to avoid the feeling of regret.

e) Motives of Futures trading

Futures trading exist primarily for the purpose of hedging. The main aim of trading in futures was to protect risk against some underlying assets like commodities or equity shares etc. The present study found that most of the retail investors' trade in futures only for speculative purpose, and only a few of them are trading in futures for hedging purpose. It is also found that all the demographic factors except gender have significant variation with the motive of futures trading.

Table-6.11: Analysis of Motives of Futures Trading with respect to Demographics

Hypothesis	**Purpose to trade in Stock & Index Futures**			**Remarks**
	Demographic Variables	χ^2	**Sig.**	
H_{035}: There is no significant variation in *futures trading motives* of the investors based on their demographic variables-	Gender	1.662	.436	Supported
	Education	50.161	.000*	Not Supported
	Income	128.900	.000*	Not Supported
	Age	93.760	.000*	Not Supported
	Occupation	55.601	.000*	Not Supported
	Experience	83.121	.000*	Not Supported

The main aim (hedging) of introducing futures market has been lost in the face of an overwhelming number of investors trading in futures for speculation. It may be one of the main causes of incurring losses in futures trading for the retail investors. The present study also agrees with Sah (2006) that the futures trades are moving towards satisfying the speculative desires of investors rather than hedging the risk.

f) Futures trading and Margin money

Retail investors incur loss in futures due to maintenance margin, around 95% of the investors agree with this statement and around 74% of them agree that frequent changes in margin percentage create problems to manage the margins in futures trading. The results also showed that demographic factors of the investors have significant variation on the opinion of margin money required in futures trading.

Table-6.12: Analysis of Margin problem with respect to Demographics

Hypothesis	Loss in Futures Trading due to maintenance margin			Remarks
	Demographic Variables	χ^2	**Sig.**	
H_{036}: There is no significant variation in *margin requirement perception* of the investors based on their demographic variables-	Gender	5.160	.023*	Not Supported
	Education	13.811	.008*	Not Supported
	Income	74.063	.000*	Not Supported
	Age	44.123	.000*	Not Supported
	Occupation	20.502	.000*	Not Supported
	Experience	72.895	.000*	Not Supported

Margin trading has the effect of 'amplifying' the investment. The markets could move in either direction- bullish or bearish. In this scenario, a leveraged portfolio can have a very satisfying or a very disastrous effect on the investor. While transacting on margin, the client could gain when stock prices go up, and conversely lose when stock prices take a dip (Sivaram, 2006). It may be said that either retail investors don't have proper knowledge about margin requirement in futures trading or they trade beyond their limit. With limited funds at their disposal, retail investors are speculating in futures trading. It could also be for the reason that the investors perhaps are not getting the required information at the time of need. There could be some lacuna with the SEBI rules which do not allow them to nurture their margins.

g) Retail Investors and Futures products

The present study found that almost majority of the retail investors are trading in index futures and only a few are engaged in individual stock futures. It may be inferred that due to limited amount of funds available to the retail investors they trade in index futures. Because usually the lot value, margin money required and risk associated in index futures is low relative to single stock futures. So the retail investors get more attracted towards index futures trading as compared to single stock trading. It is also found that majority of the retail investors (86%) want that there should be mini-single stock futures (single stock futures with small lot size), only 2% don't agree with mini-single stock futures and 12% of the retail investors neither agree nor disagree with mini-single stock futures opinion. It may be said that majority of the retail investors want that there should be mini-single stock futures lots. Most of the retail investors are interested in trading stock futures, but due to their limited funds, retail investors are unable to trade in stock futures.

Table-6.13: Analysis of Futures products' Preference with respect to Demographics

Hypothesis	**Preferred Futures Product**			**Remarks**
	Demographic Variables	χ^2	**Sig.**	
H_{037}: There is no significant variation in the investors' desire for mini futures based on their demographic variables-	Gender	.331	.565	Supported
	Education	11.897	.018*	Not Supported
	Income	14.748	.002*	Not Supported
	Age	31.733	.000*	Not Supported
	Occupation	34.293	.000*	Not Supported
	Experience	18.450	.001*	Not Supported

Mini-single stock futures may cater to this need of retail investors because in mini-single stock futures the lot size (lot value) will be very small and easily manageable by the retail investors. The study also found that all the demographic variables except gender of the retail investors exhibit significant variations on the opinion of mini-single stock futures.

h) Indian Futures Market and Trading Hours

38% of the retail investors want to increase the trading hours, 3% want to decrease the trading timing and 59% of the retail investors are satisfied with the present trading hours of futures market. It is found that most of the investors are satisfied with the present trading hours of futures market (9:00 Am to 3: 30 pm, Monday to Friday).

Table-6.14: Analysis of Trading Hour with respect to Demographics

Hypothesis	**Trading Hours in Futures Market**			**Remarks**
	Demographic Variables	χ^2	**Sig.**	
H_{038}: There is no significant variation in *trading hour requirement* of the investors based on their demographic variables-	Gender	11.301	.004*	Not Supported
	Education	24.192	.002*	Not Supported
	Income	5.874	.437	Supported
	Age	78.397	.000*	Not Supported
	Occupation	14.779	.064	Supported
	Experience	61.636	.000*	Not Supported

The study also found that most of the demographic variables except income and occupation of the retail investors exhibit significant variations on the opinion of trading hour.

i) Futures Trading and Options

The results showed that only 2% of retail investors are trading in futures with covered options, 68% trade in futures without covered options and 30% of the retail investors trade in futures with covered options (Call/Put) but some times. This may be one of the reasons to incur heavy losses in futures trading by the retail investors. Investors may be unaware of real dynamics of futures and options or they may be overconfident and take biased decisions to save the premium required in options. The study also found that all the demographic variables of the retail investors exhibit significant variations on opinion of futures trading with options.

Table-6.15: Analysis of Trade in Futures with Options with respect to Demographics

Hypothesis	Trade in futures with options			Remarks
	Demographic Variables	χ^2	Sig.	
H_{039}: There is no significant variation in the investors' tendency of trading in futures with options based on their demographic variables-	Gender	34.223	.000*	Not Supported
	Education	32.671	.000*	Not Supported
	Income	55.849	.000*	Not Supported
	Age	52.410	.000*	Not Supported
	Occupation	24.830	.002*	Not Supported
	Experience	99.503	.000*	Not Supported

The present study somehow agrees with Malik (2008) that if index futures (naked) and covered call are considered for long terms on rolling basis as an investment strategy by using value at risk measure, it amounts in translating significant higher rate of return to its respectively increased risk. Vanjeko (2010) also found that there exists a strong association among Indian individual equity investor between their age, income and city of living and his investment related characteristics and the knowledge about derivatives among investors was very low.

j) Retail Investors and Security Exchange Board of India (SEBI)

The results of the study found that only 14% of the retail investors are satisfied, 20% are not satisfied and 66% of the retail investors are neither satisfied nor dissatisfied with SEBI's functioning. It is shown that a majority of the investors have lost their faith toward SEBI. It may be due to the day to day scandals of different companies, instability of market, operators' nexus and their monopoly in the markets (Kumar & Raju, 2006). Factors like too much of price manipulation, unfair practice of brokers, corporate mismanagement and frauds are the main worries of investors (Gupta & Jain, 2008). Due to these reasons, retail investors always feel insecure to trade in futures. The study also found that all the demographic variables exhibit significant variations on the opinion of satisfaction with SEBI's functioning.

Table-6.16: Analysis of Retail Investors and SEBI with respect to Demographics

Hypothesis	Satisfied with SEBI's rules/ regulations			Remarks
H_{040}: There is no significant variation in investors' *satisfaction with SEBI* based on their demographic variables-	**Demographic Variables**	χ^2	**Sig.**	
	Gender	26.705	.000*	Not Supported
	Education	81.019	.000*	Not Supported
	Income	66.711	.000*	Not Supported
	Age	69.504	.000*	Not Supported
	Occupation	54.528	.000*	Not Supported
	Experience	48.018	.000*	Not Supported

It can be summarized that Indian investors are overconfident and take biased decisions to avoid losses. Investors do not like to take the real benefits of derivative products (hedging) rather they use it for speculations. It is also found that investors are unable to manage margins required in futures trading. Majority of the investors show their willingness for new futures products like mini stock futures. While some of the investors are not happy with frequent change of futures markets rule/byelaws and they lose their faith on SEBI's functioning.

6.3 Future prospects of Indian Futures Market

The present study shows that India is more or less politically stable. Policies of the present government are directed towards the establishment of a free, fair, transparent and fully informed futures market. FDIs and FIIs are welcomed. The exchange rates and GDP indicate a long term continuing growth of India's economy and show a huge potential for the Indian futures markets. Social factors also indicate that there will be further progress in savings per capita, improved education and employment scenario in India which is likely to bring domestic investors towards futures market. Moreover, the internet trading system is changing the competitive environment of the futures market. Investors are adopting the low cost and fast speed trading system. The advanced banking system is also making the futures business more manageable. The screen based trading attracts more and more participants toward futures markets which creates liquidity in the market.

But the maladies like monopoly of bureaucracy and corruption pose a threat to futures trading. Rising inflation and interest rates are also major issues for the market. Indian futures markets are not expanding to all the geographical regions of the country due to lack of proper infrastructure. The growing population rate is also destabilizing the growth story of India.

CHAPTER 7

MANAGERIAL IMPLICATIONS, LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

7.1 Managerial Implications of the Study

The findings of the present study provide valuable insights not only to the academic researchers but also to brokers, professional advisors, investors, etc. The study gives an idea about the influence of investors' demographics on various dimensions of investment. Additionally, it also provides an insight into investors' aptitude in futures trading.

a) Implications with respect to Investors' Demographics:

- The study shows that males are more predetermined in their investment objectives, have more risk appetite, feel less regret in losses and have more confidence and control in futures trading than their female counterparts. It implies that females need to be motivated and educated in order to participate more meaningfully and actively in futures trading. The brokers or advisors can focus more on the female investors in order to educate them and advise them as per their specific needs. This may be helpful in uplifting the position of women by providing them education and economic empowerment.
- The investment decision making is influenced greatly by educational qualification of investors. It is shown through the present study that investors who are educationally more qualified are more predetermined in investment horizon, have more risk taking attitude, suffer less regret in losses and have more confidence and control in futures trading. Even though certain educational programs, leaflets, brochures, etc. are already available, there is a need to take further steps towards creating more awareness among the new investors. The brokers can educate the investors by organizing some programs like seminars, and workshops to educate the investors in futures trading. Such programs should focus more on those who do not have a formal education in finance or are less educated. All of these will certainly improve their

knowledge and help them make well informed and appropriate decisions in futures trading.

- The present study shows that wealthier investors are more predetermined in investment horizon, have more risk taking ability. They regret less in losses and have more confidence and control in futures trading. The brokers/analysts can advice such investors for speculation in single stock futures and where the risk and reward is higher as compared to index futures. But the investors who are not so wealthy should trade in futures for hedging purpose only and avoid speculation. Even if they want to trade in futures should trade in index futures (medium risk) or mini index futures (low risk) with covered call/put options.
- With the growing age and experience of the investors, their risk taking attitude, confidence and control increases; but toward the age of retirement these attributes start decreasing. Brokers and advisors can advise their clients as per their specific needs. Investors who are below 55 years of age can trade in more risky futures products like single stock futures but the investors who are above 55 years of age should go for stock index futures and mini-index futures with covered options. This finding can be helpful too for new futures' products development.
- The study also found that investors belonging to different occupations show different opinions on the view of futures trading hours. Most of the investors who are working expressed their opinion in favor of increasing the trading time. This indicates that such investors want to watch the markets during trading hours but due to paucity of time, they are unable to do so. The market authorities as well as SEBI should take proper step to satisfy these groups by extending the futures trading hours like that of Currency Futures, NCDEX[1] and MCX[2] etc.

b) Implications with respect to Investors' Attitude:

- The present study shows that investors have self attribution bias attitude in investment decisions. If the investors earn money in futures trading they

[1] NCDX (National Commodity Derivatives Exchange) trading hours: Monday to Friday 10.00 AM to 5:00 PM; Saturday 10:00 AM to 2:00 PM

[2] MCX (Multi Commodity Exchange) trading hours: Monday to Friday 10.00 AM to 11:30 PM; Saturday 10:00 AM to 2:00 PM

consider themselves to be very knowledgeable and capable. However if the investors incur losses, they attribute it to bad luck. The study also shows that retail investors overreact to any information related to financial markets and often make wrong decisions. It should be the effort of investment advisors to educate their clients on these issues so that they may make more sound investment decisions. Investors should also consider factors like futures market volatility, its liquidity, economic growth, interest rates, inflation rate, political scenario, etc. of the country when they make financial decisions.

- Investors tend to use purchase price as the reference point and make decisions based on it. They would sell only if the price of the investment is above the price at which they had made the purchase. The study also shows that investors do not want to admit that they have made a bad investment decision and feel regret. To avoid the feeling of regret, they make wrong decisions like they tend to hang on to the bad investments. If investors need funds, they prefer to sell those shares that have shown an increase in value as they want to avoid the feeling of regret. The brokers and advisors can guide the investors about the nature of the market and appropriate decisions. Investors can benefit through this study in visualizing and realizing the repercussions of their investment decisions.
- The futures products are meant for hedging purpose while most of the investors trade in futures for speculation. It may be one of the main causes of incurring losses in futures trading for the retail investors. The present study humbly suggests that such small/ retail investors should not participate in futures trading for speculative purpose.
- The present study shows that a majority of the retail investors are unable to manage margins required in futures trading either because it may be initial margin or maintenance margin. It indicates that they are either ignorant of margins required or might have been trading beyond their limits. It could also be for the reason that the investors perhaps are not getting timely information. The brokers and financial advisors should educate their clients on margins related issues which arise in futures trading so that they do not indulge in trades beyond their control or monetary potential.

- A majority of the investors show their willingness for new futures products like mini-single stock futures. The mini-single stock futures' lot size (lot value) will be very small and easily managed by the retail investors. SEBI should take proper initiative to introduce such products.
- Most of the investors seem to be unaware of the real dynamics of futures and options. There is a need to educate them about options so that they could protect themselves against heavy losses.
- Due to stiff competition among brokers, the brokerage charges have been reduced tremendously in futures trading. Whereas, the government charges different types of taxes like security transaction tax, stamp duty, etc. which demotivates the retail investors. The rules and bylaws of futures market keep changing rapidly. Although SEBI is working on these issues but there is a need of making sustained effort for transparent and healthy futures market. Thus, there is need for stable bylaws to build up the investors' confidence in Indian futures market.
- A large number of investors is losing their faith toward SEBI due to day to day scandals of different companies, instability of market, operators' nexus and their monopoly in the markets. There is a need to make stricter rules and laws against such unfair practices to be implemented immediately to punish the culprits. In addition, appropriate regulations also need to be made which usually includes self regulatory organizations.
- The present study shows that India is more or less politically stable. FDIs and FIIs are thus, shown more of green flags with more warmth in India now. The exchange rates, GDP, savings per capita, education, employment, internet system and banking system are improving which help the Indian futures market. While monopoly of bureaucracy and corruption, rising inflation and interest rates, lack of proper infrastructure are the major impediments in the way of the Indian futures market's natural flourishing. The present research sheds light on the fact that brokers and investors can take proper benefits of the favourable factors, while the market authorities can take initiative to solve the problematic issues. RBI should take some specific and concrete steps to control the inflation as well as interest rate on a long run basis. SEBI should encourage brokers to expand their terminals to small towns also because a

large numbers of potential investors are still unaware of this market which can boost the markets' volumes and liquidity.

Based on the above findings, it can be safely summarized that the study at hand can help brokers and advisors to understand their clients and help them advise the clients accordingly. Market authorities can also take proper initiatives to satisfy the investors and attract new ones for a continuous market growth. The present study can definitely benefit the investors to overcome their weaknesses, realize the outcome of their decisions and participate in futures trading more rationally and meaningfully.

7.2 Limitations of the Study

The present study, just like any other similar study suffers from certain limitations which are discussed below:

- The study is restricted to specific cities in India. The required data was mainly obtained from 411 futures retail investors of Delhi, NOIDA, Gurgaon, Agra and Aligarh region. Study is not exhaustive and has a scope for further research.
- It is always a problem to get an enthusiastic response. There were not many willing participants; lack of cooperation remains an aberration in most of the survey based researches. The same was observed in this study. They had excuses, showed lack of time, or expressed even an incomprehensive disinterest. Some respondents appeared reluctant to participate in the survey for reasons unrevealed.
- It was observed that the stock markets played the role of remote controlling the people. The respondents' behavior changes according to stock market fluctuations. It may reflect in the responses of some of the respondent, they may vary according to the market and thus, the findings of the survey may differ from time to time.
- There is a lack of empirical studies in this field. Specifically the Futures market effects, related human behavior and other relevant aspects in the Indian context haven't been paid much heed to. This limitation also affected the

research. Such previous studies could have made the foundation of the present effort even more robust and strong.

- The study was restricted to single stock futures and stock based index futures only. Although these futures represent a significant part of Indian futures market, still it may reflect only partial reality of the entire Indian futures market.
- The questionnaire used for this study may be improved by adding more questions for a better result.
- The measurement of data is also subjected to errors.

In spite of the above mentioned limitations and constraints, the present study has gone ahead with a positive stride. The research has acquired a meaningful conclusion by striking the right points. The contribution of the progress in the various research designs supported by valid and reliable research instruments enabled to minimize the effects of the constraints faced and dealt with.

7.3 Directions for Future Research

A more detailed and grounded theoretical framework for analyzing retail investors' participation in futures market can certainly be of great help. Based on this study, the following directions for futures research may be pointed out:

- Futures research efforts need to focus on additional decision variables pertaining to prediction of investors' behavior in futures trading.
- Future researchers can explain the scope of study to include smaller cities/towns for data collection and study the difference in gap between attitude and perception with respect to futures trading of metropolitan respondents and smaller city respondents.
- Aspiring researchers may replicate this study in other countries and cultures on respondents with varied demographic backgrounds to validate the findings of the present study so as to improve its generalizability.
- Prospective researchers can do a comparative study between equity investors and futures traders, institutional investors and retail investors, and commodity futures and equity futures traders. It could help them to understand investors' behavior and attitude more clearly.

- Future researchers may compare the difference between online[3] and offline[4] futures investors.
- Researches may be carried out to unravel the complex mechanism of futures trading and its impact on investors.
- There is a need of proper futures product design in order to attract the investors. Even though the present thesis could not deliberate upon this issue in detail, a regular and progressive research will make it competent enough to bear the fast changing tides of the market.
- Multiple regression and model testing through confirmatory Factor Analysis (CFA) and Structural Equation Model (SEM) can be used in studying this topic.

It is suggested that future researchers should endeavor to further reduce the limitations mentioned in this study to extend and refine this research.

[3] Online trading offers the convenience to trade from the comfort of home / office. Brokers provide trading software which can be downloaded by the client on any system. Through their user ID & password, clients can start trading online.

[4] Offline trading: This is the most traditional way of carrying out trading in financial markets. Clients can place their orders with broking houses visiting them personally or on the phone.

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APPENDIX

QUESTIONNAIRE

This questionnaire is a part of the present research survey. Your participation in filling this questionnaire will be highly appreciated. All the information will be kept confidential and will be used for academic purpose only.

Please tick mark (√) the most appropriate option given against each statement:

SECTION A

1	My experience in the Share Market	a. Less than 2years c. 4 to <6 years	b. 2 to <4 years d. above 6 years
2	My trading frequency in the stock market.	a. Always c. Often e. Sometimes	b. Frequently d. Seldom
3	Yearly income(Rs)	a. Upto 300000 c. 600001 to 900000	b. 300001 to 600000 d. above 900000
4	Occupation	a. Government Job Holder c. Businessman e. Others	b. Private Job Holder d. Housewife
5	Educational Qualification	a. Below-graduate c. Post Graduate e. Others	b. Graduate d. Professionally Qualified
6	Age(years)	a. Upto 25 years c. 36 to 45 years e. above 55 years	b. 26 to 35 years d. 46 to 55 years
7	Gender	a. Male	b. Female
8	Marital Status	a. Married	b. Unmarried

If you are trading in *Futures/Options* then please proceed to SECTION-B on the next page otherwise please tick (√) the most appropriate following reason for not trading in *Futures/Options.*

a. Futures trading are very risky.	b. I don't have sufficient knowledge of Futures trading.	c. Futures trading requires huge funds.
d. Futures trading gives more mental stress.	e. Other reasons please specify _____	

Please tick mark (√) the most appropriate option given against each statement:

SECTION B

SN.	Statements	Strongly Disagree							Strongly Agree
1	I expect my Futures contracts to perform better than the other Futures contracts.	Strongly Disagree	1	2	3	4	5	6	7 Strongly Agree
2	I am trading to supplement my income.		1	2	3	4	5	6	7
3	I am prepared to take greater risk in order to earn greater return in Stock Index Futures Trading.		1	2	3	4	5	6	7
4	I feel more confident in my own investment opinions over opinions of friends and colleagues.		1	2	3	4	5	6	7
5	I feel more comfortable taking risks when my trade contracts are performing well.		1	2	3	4	5	6	7
6	I am an experienced Stock Index Futures trader.		1	2	3	4	5	6	7
7	I feel more confident in my own investment opinions over opinion of financial analysts and advisors.		1	2	3	4	5	6	7
8	My trading losses are felt more than my gains.		1	2	3	4	5	6	7
9	I am likely to purchase Futures that have been recommended by friends or colleagues.		1	2	3	4	5	6	7
10	I feel more confident in the validity of information that I collect myself.		1	2	3	4	5	6	7
11	Fluctuations in the stock market do not concern me.		1	2	3	4	5	6	7
12	I spend considerable effort researching my investments.		1	2	3	4	5	6	7
13	If one of my Futures contracts dropped considerably, I would keep that contract in hopes that it would recover.		1	2	3	4	5	6	7

Please tick mark (√) the most appropriate option given against each statement:

SECTION B (Continues)

SN.	Statements	Strongly Disagree							Strongly Agree
14	I check the performance of my investments very frequently.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
15	When one of my investments performs poorly, I feel unlucky.		1	2	3	4	5	6	7	
16	After I have spent a long time researching an investment, I am more likely to act on this information (buy or sell).		1	2	3	4	5	6	7	
17	I feel more confident when I have immediate access to my investments.		1	2	3	4	5	6	7	
18	Stock market fluctuations as reported by the media do not bother me.		1	2	3	4	5	6	7	
19	I comfortably understand the Stock Index Futures products, services, opportunities & challenges.		1	2	3	4	5	6	7	
20	I feel competent enough to trade in the Futures markets.		1	2	3	4	5	6	7	
21	I trade in Futures with predetermined objectives in my mind.		1	2	3	4	5	6	7	

Please continue to SECTION- C

Please tick mark (√) the most appropriate option given against each statement:

SECTION C

1	Your acquaintance had purchased a stock that later did badly. Do you think this as a mistake or a case of bad luck?	a. Mistake b. Bad luck
2	You had purchased a stock that later did badly. Do you think this as a mistake or a case of bad luck?	a. Mistake -------- b. Bad luck --------
3	Which of the sequence is more likely to occur when a coin is tossed six times?	a. HHHTTT b. HTHTTH
4	Investor 'A' owns a stock which he originally bought for Rs. 100. Investor 'B' has the same stock, but he bought it at Rs 200. The value of the stock now is Rs 150. Who according to you is more upset?	a. A b. B
5	You bought a share 'X' for Rs 100, which is currently selling at 150 and the stock 'Y' for Rs 200, which is also selling for Rs 150. You are in need of money, which one would you sell?	a. X b. Y
6	Most of the time I trade in Stock /Index Futures for	a. Speculation b. Hedging c. Both
7	Retail traders trade in Futures due to leverage (low initial margin), but most of the time they fail to manage the maintenance margins for their contracts in this high volatile market and incur heavy losses.	a. Yes b. No
8	Frequent change in margin %, create problems for me in futures trading to maintain my futures contracts.	a. Yes b. No
9	I prefer to trade in (please tick mark against your first choice only).	a. Stock Futures b. Index Futures
10	I think there should be 'Mini Stock Futures' in individual stocks like 'Mini Nifty' and 'Chhota Sensex.	a. Yes b. No c. Can't say
11	In my opinion the 'Index Futures' trading time should be (presently 9:00 AM to 3:30 PM)	a. Increased b. Decreased c. No Change
12	I trade in Futures with option (tick your option)	a. Always b. Some times c. Never
13	I am satisfied with SEBI's rules/regulations	a. Yes b. No c. Can't say

Thank you